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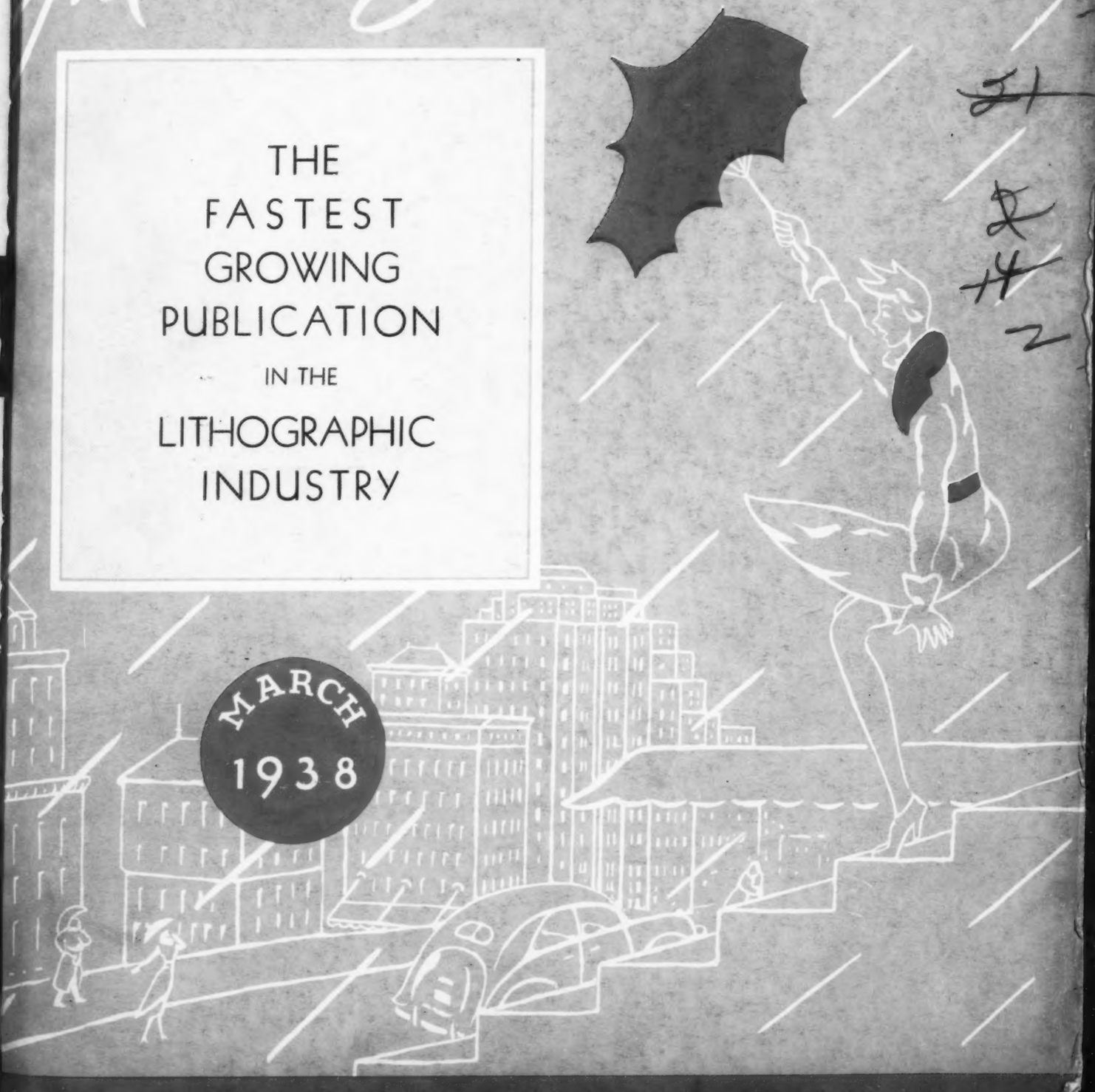

MARCH
1938

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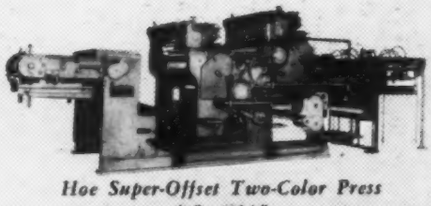

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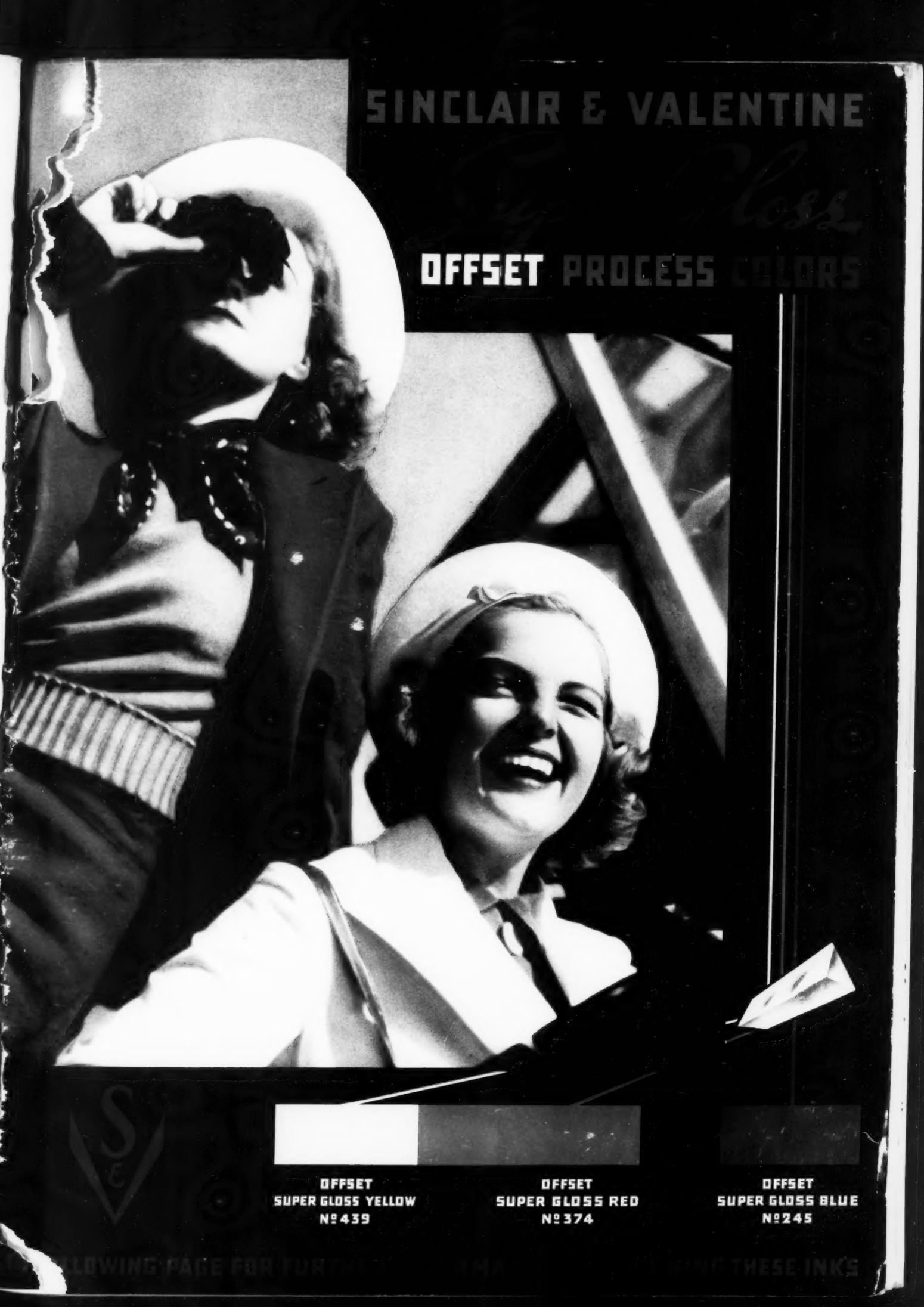
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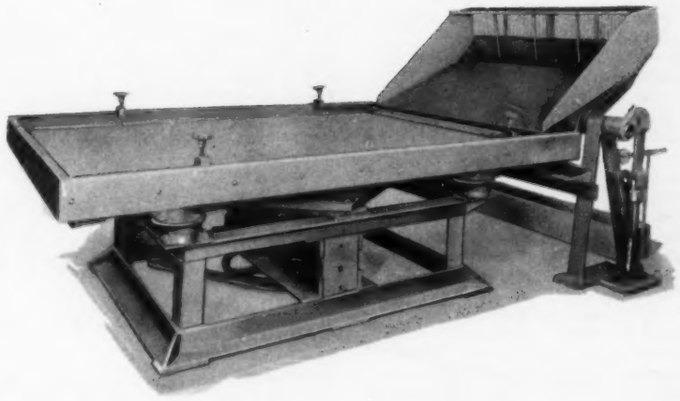

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Published in the Interests of Lithographers to Increase Sales, Efficiency and Quality

WALTER E. SODERSTROM, *Publisher and Editor*

DONALD L. GUTELIUS, *Associate Editor* — SAMUEL D. WOLFF, *Advertising Manager*

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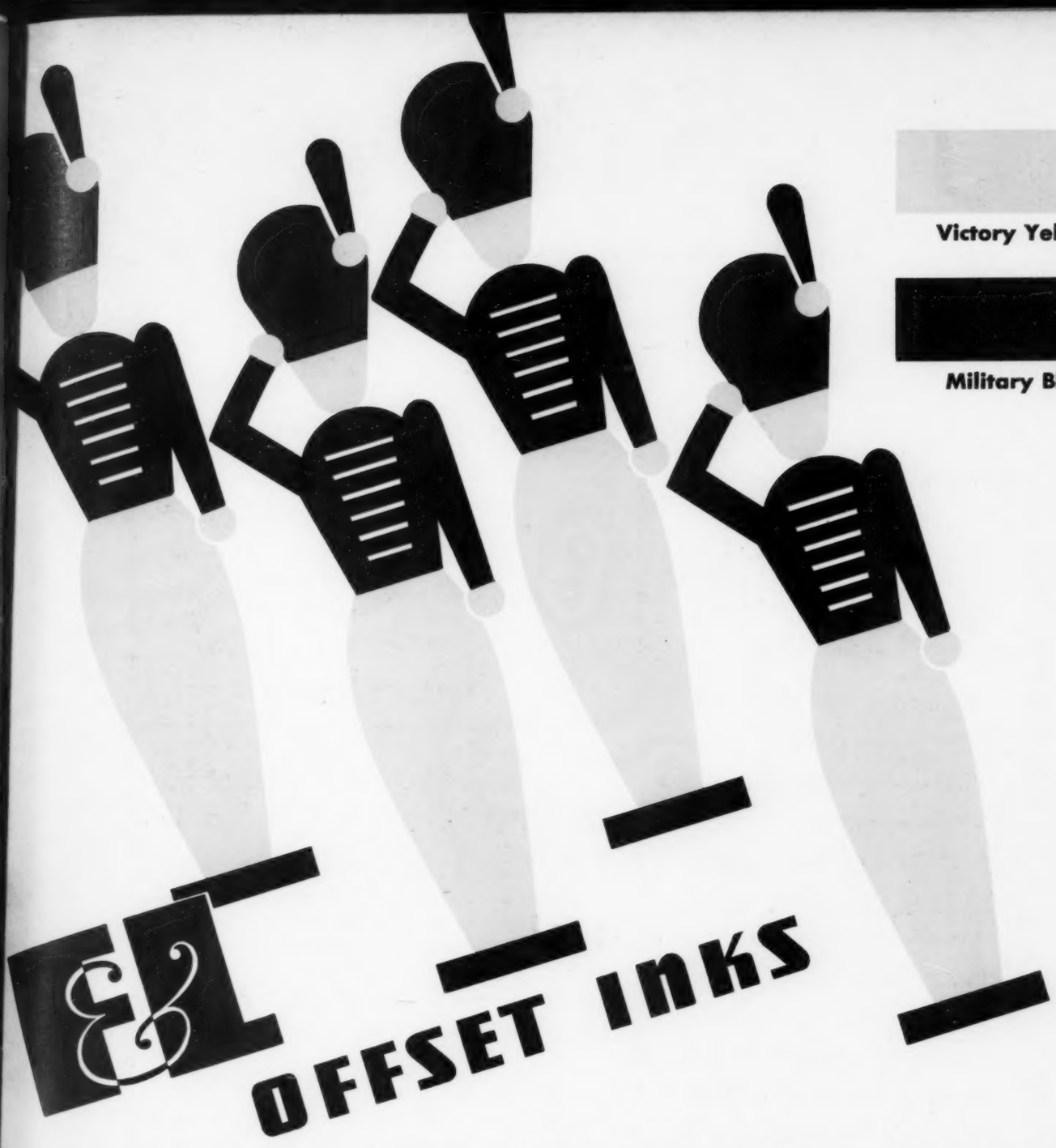

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THE PHOTO-LITHOGRAPHER

Published in the Interests of Lithographers to Increase Sales, Efficiency and Quality

Volume VI MARCH, 1938 *Number 3*

THINKING OUT LOUD

By W. E. S.

THERE are two schools of thought on how to get the most profit out of a photo-lithographic plant—(1) Get the greatest volume possible and turn out a cheap product at the lowest price in town, and (2) get a smaller volume and turn out work of high quality at prices which result in a greater profit on each job.

Both policies will be found in operation in plants in many communities, especially in large cities.

In the low price houses the materials used are inferior. Equipment is pushed to untimely depreciation and often it is not properly figured in the profit and loss statement. Wages are as low as the management dare pay, therefore the workmen—and the product they turn out, are mediocre, or worse.

In such a place the head of the organization is constantly on edge, supervising the great volume of estimating, quoting, making out job tickets, billing, and so on. He has no time to maintain an adequate cost system, or for constructive thinking along the lines of improving quality, developing more orderly procedures, and opening up new sales outlets.

In the other type of house, ideas and imagination play an important part. The salesmen have time and the ability to increase the value of an order to the customer through use of good layout and the careful selection of materials, formats, etc., best able to do a job.

The employees in this house are craftsmen, paid fair wages and enjoying their work. The employer, with a reasonable work schedule, can maintain accurate records on the cost of doing business. He knows where he is going. At the end of the year his books usually show a greater per cent of profit than those of his helter-skelter competitor.

The business life of the low price lithographer often is more exciting, but also shorter, more precarious. He is disliked by his competitors, by those who sell him, and often by the very men who are bringing in and turning out the work.

Most buyers may be enticed for a short time by the lower prices quoted by the cheap product—low price shop, but in the long run the quality shop will get their desirable business—the kind that adds most to the black, and bright, side of the ledger.

Through the last several weeks The Photo-Lithographer suffered a bit from growing pains. There were lots of extra things to be done to put into effect our increase of page size and the launching of the Metropolitan Section, but now they are accomplished and we feel mildly elated, and pleasantly self-conscious. We hope our readers like the new size.

ADVERTISING is a distribution tool which lowers the cost of selling. It is a valuable social force, making possible the economies of large scale production, and thus enabling the consumer to buy more goods with each dollar.

Business, today, is attacked from all sides. It is accused on one side of oppressing the workers, on another of bringing on maliciously a critical business relapse to hurt the government; elsewhere, it is said to have conspired to keep prices so high that none can buy the goods it produces. Advertising is attacked, too. Some call it economic waste; some say it promotes the sales of harmful products; others say that we should stop advertising and give the saving to the consumer in the form of lowered prices.

This contrast of fact and fancy must be faced and a solution found.

Most advertising men believe implicitly in the value of the business they represent and the work they do, but all over the country the people as a whole are being informed—with little or no refutation—that business is villainous and advertising pernicious.

"Business Must Speak for Itself," a prominent advertising man of our day has said. No one else will speak for it. Business, always intent in the past on earning its daily bread and enough to pay its taxes, must take the trouble to defend itself. We, who are so closely allied with advertising, could make no greater contribution to the future of business and advertising than to determine that each one of us will make himself a persistent propagandist for the defense of the system which provides our livelihood.

THERE'S A RADIO STATION IN YOUR TOWN

By JAMES W. HURLBUT

Director of Publicity, Radio Station WJSV, Washington, D. C.

THERE'S a radio station in your town and it's a live, potential market for lithographers to exploit.

Radio has always been a stand-out buyer of lithography. The three major networks—Columbia, Mutual, and National—have promotion departments headed by alert executives who are well aware of the selling psychology of dressing up their otherwise drab statistical messages in the attractive garments offered by lithography.

An excellent example of the use of lithography by radio broadcasters is the brochure, ". . . to shrink space," recently distributed by the Columbia Broadcasting System. The piece was 9 x 12" sixteen pages, self-covered in heavy special finish offset, and employed grey, orange, and green—in flat tint and screen—as well as black to present a series of charts and outline maps to show the coverage of the Columbia Broadcasting System and its member stations. An interesting feature, incidentally, was the use of reverse plates to show the maps outlined in white on an off-shade grey background. Interesting, simple, and attention-compelling, the book was widely distributed, did its job in a first rate manner and brought a satisfactory profit to the lithographer who produced it.

Naturally, in spite of the fact that many of these "quality" promotion jobs are put out annually by the major nets they mean little or nothing to the lithographic houses in the smaller cities since the network promotion departments are in New York and are almost entirely "big house" conscious when it comes to work of this type.

A further problem is the fact that although the three nets own and operate stations in several cities across the country and promotion material is produced every month for these stations, all the business that might be placed locally is sent to New York, produced there, and shipped out from the main office.

The problem might even be extended further to include all the administrative form material which is used by the network-owned stations. Although much of this work is individualized for the separate stations, the practice is to send requisitions to the network purchasing agents in New York who ship it out to the stations as it is needed.

"What, then," is the question of the out-of-New York lithographer, "can radio broadcasters do for me in the way of new business?"

In spite of the objections outlined, the answer to the question is, "Plenty!" Plenty, that is, to the alert company and to the salesman with sufficient vision to create ideas and sell results in the abstract.

In the first place, there is a total of seven hundred and twenty-five licensed commercial broadcasting stations in the United States, according to latest figures available at the Federal Communications Commission. Only a pittance of this number are owned and operated by the major loops. Perhaps a little less than half of the stations are affiliated directly with one of the chains. Even these stations are responsible individually for their own promotion. This means that over seven hundred radio stations scattered from coast to coast are potential users of lithography, not only for office forms, but also for the purpose of station promotion.

A large line of white lettering on green background, with gray tint over balance of sheet—the kind of job "made to order" for the photo-lithographer.

It was stated advisedly that these stations are "potential" users of lithography, for many of them are now doing nothing in the way of outside promotion, in most cases because their modest administrative budget does not permit the employing of a promotion manager, as such, to devise means of successful sales promotion. Instead, the other company executives—station manager, sales manager, publicity director, and program director—theoretically divide this work between them, but each is too busy with his own department to pay much attention to the important item of station sales promotion.

If an alert salesman would go to the station manager with an intelligent idea—the cost of which, in terms of results, would be within the means of the broadcaster—he would be sure at least of a cordial reception, an interested listener, and in many instances a satisfied customer.

The ideas a salesman may present are legion. Every station in every locality has a sales problem peculiar to its environment. What might be sauce in the East is applesauce in the Middle West and even worse than that on the Pacific coast.

One of the most potent ideas, and one which transcends sectional differences, is the house organ. Many stations are now employing this medium, an even greater number are not. Those that are using it are well satisfied with the results. Even these stations, however, are grist for the lithographer's mill. Suggestions for improved format, increased use of photographs, drawings, charts, and graphs—economically possible by lithography—are well received and result in contracts.

Incidentally, at least one enterprising shop, running into the objection of insufficient funds to sustain a house organ, suggested a reciprocal trade arrangement. The station got its paper which went to over a thousand advertisers and potential advertisers; and the lithographer got time on the air and an ad in the paper. Both are well satisfied with the arrangement.

A salesman in a large Eastern city, contacting one of the local radio stations, noted that press releases were being sent out on tissues and were unimpressive as well as practically illegible. The salesman's first step was to suggest a standard first sheet with a neat, attractive head. He submitted sample sketches and shortly placed a substantial order, including billing for the art work. As results began to show from the use of the new press release he experienced little difficulty in selling the station on the use of photo-lithography for the reproduction of the copy and now has a steady tri-weekly order on the job.

Another idea which bore fruit was the suggestion to dress up the weekly program schedule of the station by creating an attractive cover which would hide the matter-of-fact program listings which were run off by office equipment in the station's offices. The salesman again submitted sketches and walked off with business where other salesmen, merely looking for orders, had been told there was no work to be had. The step he is working on now is to convert the listings themselves to photo-lith and it looks as though he will soon be successful.

Radio stations use several kinds of forms which are unique with radio. They are all necessary to the daily operation of the station and are all adaptable to reproduction by lithography. Included in this category are daily operations schedules, production reports, network folios, time schedules, rate cards, call sheets, control room logs, and so on. The office forms employed by radio stations are more or less standard and are used in the same amount as any other business.

In developing merchandising ideas for radio broadcasters the salesman should bear in mind the general merchandising possibilities of his community. A station in Phoenix, Arizona, made up an elaborate mailing piece citing the wealth derived by the community from its copper ore resources. The inside of the folder was lithographed and the cover was a copper sheeting. The idea, of course, was excellent for Phoenix, but certainly would have no value in Florida. Similarly, a folder sent out by a Miami station plugging the winter tourist audience would sell no time in Chicago.

In contacting a radio station, then, don't let a mere request for a chance to quote on possible work suffice. Talk to the sales manager, the station manager, the program director, and the publicity man. Feel out the situation and let the individual problems generate your ideas. The business is there if you go after it.

Modern Photography Grooms Itself for Parade

MODERN photography will be on parade the week of April 18 to 24 when the First International Photographic Exposition will be held in Grand Central Palace, New York.

The Exposition, according to its promoters, who include well-known associations, companies, and individuals in the photographic field, will be the most comprehensive and popular exhibition of photographs and photographic and allied equipment ever held.

The exhibition of photographs at the Exposition will include such departments as commercial, historical, professional, news, industrial, business, candid camera, scientific, aerial, microscopic, foreign exhibits, special color exhibits, and others.

One novel feature will be a stage show and picture taking free-for-all. At frequent intervals during the Exposition a program of dances, fashion shows, athletic events, and other acts high in photographic possibilities will be presented on a brilliantly lighted stage. Here the candid camera fan can "shoot" to his heart's content.

The Exposition will have a large section devoted to manufacturers' exhibits, in which the entire range of modern photographic and allied equipment will be shown and demonstrated.

Over five hundred awards and prizes will be presented to the winners of competitions sponsored by the Exposition.

62 Awards Announced

IN ALL-AMERICA PACKAGE COMPETITION

THAT manufacturers during 1937 reached a new appreciation of the added saleability of their products when packaged conveniently and attractively is attested by the more than 21,000 entries received in the 1937 All-America Package Competition. This is indeed a far cry from the first All-America Package Competition held in 1931, in which 271 packages were entered.

The sixty-two prize winners are exemplary of packaging as a factor in consumer acceptance and sales. Some of the winners are old favorites in rejuvenated dress; others appear for the first time in packaged form, as in the case of the Mor-Fun popcorn, which reported 600% increase from bulk to packaged sales; still others herald the application of sound merchandising principles to a hitherto neglected field, as in the case of the cellophane-wrapped "Ready To Cook" poultry.

Interesting too, is the representation among the prize-winners of the hardware and textile fields, notable packaging laggards. There are nine textile prize-winning packages and eight hardware, comparing favorably with such package-conscious fields as food and drug, which are represented among the winners with eighteen and eleven awards respectively. Besides six awards in the beverage industries, there are prize-winning production installations, counter, floor, shelf and window displays, printing ink in tubes; washable playing cards in a transparent plastic box; a completely assembled fishing kit; writing and drawing inks with a novel display value; cigars heat-sealed in foil wraps; silverware in a transparent, roll-top box; and wallboard samples wrapped with illustrations of their use. The medical field is represented in the prize-winners with a sampling unit, an efficient "life and death" solution container, and blood test equipment in a compact plastic case.

The judges set up the following criteria of selection: (1) Protection, such as mechanical construction and use of adequate packaging materials; (2) Convenience, such as ability of the package to be opened and closed for inspection and use, completeness of information regarding service of the product, storage requirements in the store and home; (3) Merchantability, such as design, size, shape, color, style, typography, illustration, originality, display, point-of-sale appeal, re-use, and ability to tie-in with advertising in various forms; (4) Adaptability as regards economical production and the use of practical packaging materials.

Official announcement of all prize-winners will be made in the March 15th issue of "Modern Packaging" followed on March 23rd with presentation of awards at a dinner in Chicago.

Complete travelling exhibits of the prize winners will tour the United States and abroad all through 1938, spreading the drama of packaging before advertising clubs, rotary clubs, chambers of commerce, advertising classes, etc.

The following lithographers are mentioned in connection with the sixty-two prize winners:

Michigan Lithographing Co., Grand Rapids, Michigan—Lithographed bands on Carson Pirie Scott & Co. dry goods packages and also Gilt Edge Hosiery Box, box wrap and band.

Einson-Freeman Co. Inc., Starr & Borden Avenues, L. I. C., N. Y.—Schaeffer Fall and Summer Displays.

Niagara Lithograph Co., Buffalo, N. Y.—Coca Cola Revolving Door Window Display.

Polygraphic Co. of America, 304 E. 45th Street, N. Y. C.—Ski-Boy Window Display for Canada Dry Ginger Ale.

U. S. Printing & Litho. Co., Cincinnati, Ohio—Labels on Higgins Writing Ink and Pastes.

Michigan Lithographing Co., Grand Rapids, Michigan—Spool Wrappers on Anaconda Wire & Cable packages.

Consolidated Lithographing Corp., Brooklyn, N. Y.—Displays for P. Duff & Sons prize-winning cake mix packages.

Stecher-Traung Lithograph Corp., Rochester, N. Y.—Beech-Nut Biscuit package opaque wrap.

General Lithographic Corp., designer, subsidiary of the American Label Co., New York City—Cinco Cigars.

Forbes Litho. Mfg. Co., Boston, Mass.—Labels for canned clams, clam chowders, bottled clam juice, tiny frankfurts, tiny pork sausages, fudge pudding, spice pudding, date and pecan pudding, black bean soup, Puree Mongole soup and Consomme Madrilene—Wm. Underwood food labels.

U. S. Printing & Lithograph Co., Cincinnati, Ohio—Label for Government House Rum bottles.

Bradshaw's Ltd., Toronto, Ontario—Lithographer of National Hosiery Mills, Phantom No-Sha-Do Hosiery Box.

Sampson-Matthews Ltd., Toronto, Ontario—Lithographer of McCormick's Biscuit packages.

Some of the Winners Shown on Facing Page

One of the most ingenious displays was the 3-color, dual floorstand for Nectar Tea and Our Own Tea, designed and manufactured by the Gair Cartons Division of Robert Gair Company, Inc. of New York. It was selected for the Silver Award in the Display Division.

The "Ski-Boy" display, lithographed by the Polygraphic Co. of America, of New York City, was awarded a bronze medal.

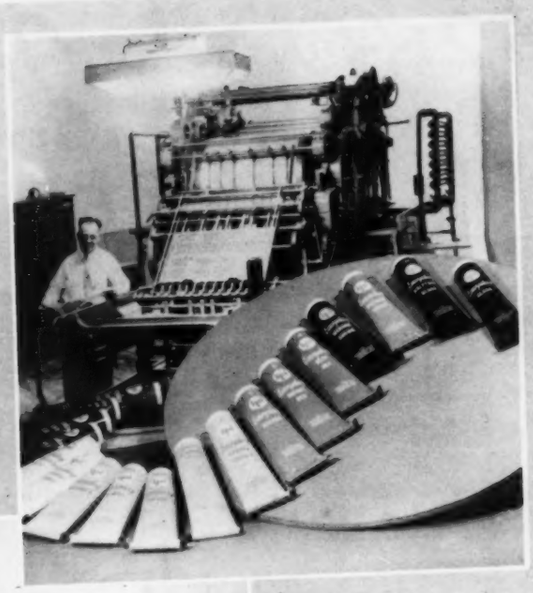
A three-dimensional window display designed and lithographed by the Niagara Lithograph Co. of Buffalo, N. Y. for The Coca Cola Company of Atlanta, Georgia, was chosen for a Silver Award.

A new line of printing inks, marketed in tubes by the International Printing Ink Corporation, won the gold medal award in the Collapsible Tube Division. These "Everyday" job inks in tubes prevent loss through "skinning" or evaporation.

Each tube is colored to make it easy for the printer to pick out any colored ink he wants to use.

The Schaefer's Beer Fall and Summer displays were so splendidly executed by Einson-Freeman Co., Long Island City, N. Y., in a new technique combining direct color photography by Paul Hesse with deep-etch offset lithography, that they were chosen for the Gold Award in the Window Display Division.

SERVE ICED
NECTAR TEA
For quick, lasting coolness
NECTAR TEA
The largest-selling TEA in the U.S.A.



THE PLEASANTEST PLACE IN TOWN
Coca-Cola
Coca-Cola

CANADA DRY
THE GINGER ALE
THE DRINK WITH A REASON
5-10-15¢

Schaefer

Schaefer

DUFAYCOLOR TRANSPARENCIES

By MARC T. STATLER
Dufaycolor, Inc.

WORKERS in the graphic arts field are constantly searching for new and improved ways of turning out better work. Gadgets come into use, methods are revised; nearly every house has a method they call their own. Quality is high, and a good many organizations say that their methods achieve this with the minimum of useless manipulation.

There is one stage in the production of good color work that, without exception, every lithographic house would like to dispense with. If the artist could be done away with, safely, it would be considered a boon to everybody, except, of course, the artist. This is possible, and has been so for some time. A good photographer can make separation negatives from flat copy that when finally printed produce a set of plates far superior to any touched up by a dot-etcher.

My object here is not to give instructions as to how this can be done; rather to suggest ways in which the hand work can be cut down. Perhaps with the information I shall give, the good photographer will have less trouble in producing a perfect set of separations.

Direct color photography is by no means the answer to a maiden's prayer. It does not solve all the problems of the lithographer, but it helps to solve a good many of them.

Just as there is no such thing as a perfect plate, so is there no such thing as perfect copy, but for most lithographic purposes a transparency is far better than paper. A subtractive transparency (in which the primaries are red, yellow, and blue) lends itself better to reproduction than the painting does, but an additive transparency does so even more.

Dufaycolor is an additive process. The primary color elements in the film are red, green, and blue. Even the lithographer who follows the rule-of-thumb methods in his color work can do as high a grade of work from this as he can from the paper print, and with less effort.

This type of lithographer treats every job that comes along in identically the same manner; same filters, and same exposures for separation, and no alteration in any one step excepting the retouching, which of course assumes fantastic proportions. However, with an additive, or Dufaycolor transparency, the color elements are of the same nature as the separation filters; the operator photographs light, instead of pigments as in the case of a wash drawing for example, and it stands to reason that the negatives produced will be of more value than those made from the latter.

The making of a good separation depends on many more things than just good copy and, since every lithographer has his own ideas as to what these things are and how he will cope with them, there is no need of my going very deeply into this. Without the proper filters, however, even the best lithographer can run into difficulty. With Dufay it has been found that for good contact separation the Dufaycolor "S" filter series gives best results, and for optical separation Dufacolor has another set of filters, known as the "P" series, which also include a yellow for the grey printer. The cutting quality of both of these sets of filters is extremely sharp. The "P" series is, however, much lighter than the other, and a considerable shortening of the exposure time is necessary.

The Wratten sets in common use with lithographers can also be used successfully, but subsequent operations are often prolonged.

Size can no longer be a drawback from the use of Dufaycolor transparencies, since the film can be had up to 11 by 14 inches. Unless the operator is making 24-sheet posters or window displays he cannot complain of any loss from the transparency, either in color or in detail. The very best can be gotten from Dufaycolor by copying at a smaller size. Here there is absolutely no risk of losing anything.

Enlargements, of course, can be made successfully without any great loss, and never does a moire pattern occur, except at that stage where the Dufaycolor reseau (now 1,000 lines to the inch) and the cross-lined screen are same size. Below a triple enlargement with a 100-line screen one can be perfectly safe from patterns.

If, though, the specifications call for a size at which the moire appears, it can be eliminated by making continuous tone progressive step-ups, using the Pisani instrument on the camera, or throwing the Dufaycolor reseau very slightly out of focus.

Anyone who has seen a good transparency will agree that it has a brilliance, a third dimensional quality, and a sparkle the like of which could hardly be produced on paper, since no paper has the luminosity of transmitted light. This is one of the great advantages that the transparency does have over the paper print as copy.

Advertisers are beginning to realize this; they value the simplicity with which the Dufaycolor transparency can be made. The increased quality at the decreased cost has made many people transparency conscious, and lithographers are beginning to use them. Of course, the more the lithographer works with the transparency the more he learns, but to remember that art work is not direct-color photography is very important.

Besides being a help to the advertiser, the Dufaycolor transparency is a time and money saver to the lithographer; invaluable when properly used.

The accompanying reproduction, lithographed from a Dufaycolor transparency by Zeese-Wilkinson, is a typical example of what can be done with the material by careful camera work and a minimum of hand retouching.

Reproduced in four color Similetone
from Dufay film by Zeese-Wilkinson Co. Inc.

CROPPING *Photographs* TO IMPROVE LITHOGRAPHIC LAYOUTS

By EDWARD C. STERRY

CROP! . . . crop! . . . crop! Many a good photograph has been spoiled through lack of cropping . . . the elimination of the non-essential portions of composition which tend to detract from the essential part of the photograph.

By the same token, many a good layout has been spoiled through lack of cropping the photographs around which it is built.

The newspaper rewrite man who unmercifully blue pencils the reporter's story does so in order to make the news sparkle and become more animated and interesting. Cropping photographs is done for the same reason . . . to improve the composition and make the subject appear more interesting. Only we don't do enough cropping.

Of course, cropping will not *always* bring about a desired result. You've got to have a pleasing and intelligent piece of composition to start with. But it is safe to say that the use of the shears will improve nine-tenths of all photographs.

Perhaps you may say, "Why not study photographic composition so that cropping will not be required?" This is not always possible. In order to maintain a certain perspective it is sometimes necessary for a photographer (professionals and amateurs) to include some non-essentials in the picture. Then, too, an image in the finder or the ground glass looks totally different sometimes in the finished print.

But with the combination of a good photographer and a good layout man who knows good photographic composition, most any picture can be vastly improved. And many layouts can be improved with the use of properly cropped photographs.

The principles applying to typographic display apply also to photographic composition. Balance, harmony, rhythm, contrast, tone, etc., are all essential elements in composition. But in photographs these elements are more difficult to secure and control. You cannot turn a house around . . . or plant a tree . . . or put a couple of boats in the river to add atmosphere. After the photographer has used all his craftsmanship in securing good composition he still has to resort to cropping and retouching to improve his composition.

It is really amazing how the cropping of the non-essential portions of a photograph will enchance and improve the essential parts.

The accompanying illustrations show how a lithographic layout may be improved by properly cropping and enlarging photographs. The revised layout possesses rhythm without monotony, and balance, harmony, contrast—all essential elements in any good layout.

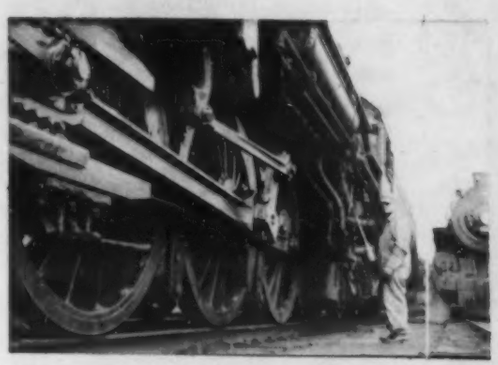
The photo-lithographer who takes an intelligent interest in the photographs placed in his care for reproduction not only helps his customer, but himself, in more ways than one, because the proper cropping of photographs often means larger half-tones. When half-tones are figured by the square inch the lithographer profits by the increase in size, and the customer profits by larger and more dominant pictures, perhaps emphasizing some important selling points.

Necessary cropping greatly improves photographic composition and contributes materially to good layout because the same principles of good composition are applied in each case. Poor photographic composition due to lack of cropping detracts from a good layout and helps kill what otherwise would be a good piece of typographical composition and design.

Chapters could be written on photographic composition but suffice at this time to say that ninety per cent of the photographs for photo-lithographic reproduction can be improved by cropping . . . yes, merciless cropping. This, together with the fact that cropping photos will improve the layout and the appearance of the finished piece, should be sufficient reason for the layout man in photo-lithography to take more than an ordinary interest in his customers' photographs.

Crop until it hurts. And don't be satisfied with a layout until the photographs you intend using have been properly cropped.

Uncropped Photographs, *too Uniform in Size*, Tend to Produce UNINTERESTING *and* STATIC Layouts!

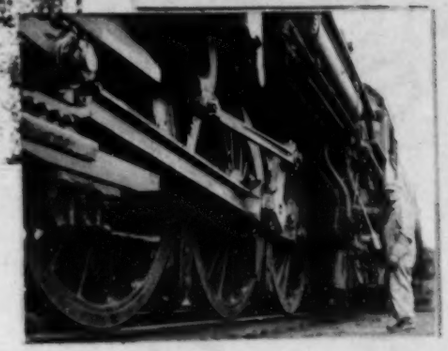


White Lines Show the Uninteresting Portions of Pictures, Which Have Been Cropped • *Enlarge and Crop Photos to Improve Layouts*

Properly Cropped PHOTOS Dynamically Arranged Put *"Salesmanship"* Into Layouts . .

Properly Cropped PHOTOS Dynamically Arranged Put *"Salesmanship"* Into Layouts . .

M



Cropping Permits Enlarging of Pictures · Grouping or Lapping Adds Interest to the Layout and Conserves Space!

Sales Almanac for 1938

—A GUIDE TO PLANNED SELLING

"WANT any nice, fresh lithography today?" will have no place in the lexicon of the salesman who studies and puts into use the countless valuable suggestions as to who to see, why, and when, that are contained in a "Sales Almanac for 1938," which appeared in the January issue of The American Printer.

The Almanac, or Calendar, was prepared by Richard Messner, of the Direct Advertising Division, E. E. Brogle & Co., Inc., New York. Every month is represented by a complete calendar of which the one for April on the following page is typical.

Every lithographic salesman would make a wise investment by buying The American Printer which, beginning in its March issue, will reprint each month the portion of the Calendar covering the following month. The January issue is out of print because of an unusual demand for it.

Through the courtesy of The American Printer, The Photo-Lithographer is able to reproduce the typical page and part of Mr. Messner's introduction to the Calendar. It follows:

"To help printing salesmen and executives to approach their task of selling printing with the more scientific attitude is the purpose of the Printing Salesman's Calendar. . .

"Furthest from the writer's mind is to tell you what to do. This calendar was designed solely to furnish you with *facts* and *suggestions* that will provoke thought on your part. Preparation before calling on a prospect in a given industry is of vital importance and helps to eliminate the "Want to Buy Something?" approach.

"Your prospects may be divided into five classifications, namely: manufacturers, wholesalers, retailers, service organizations, and the combined group of philanthropic and welfare agencies and associations. Possibly your mailing lists are so arranged for specific appeals and controlled promotion. The location of your plant would determine the relative importance to you of each group so far as potential business is concerned. Some printers obtain most of their business from manufacturers, others from retailers. For that reason the various classifications and their activities have been segregated for easy and specific reference. This break-up also facilitates comparison of manufacturers' peak sales months with consumer demand through the retailer and wholesaler.

"The second column of our calendar is headed 'Basis for Timely Concentration on Most Active Businesses.' Note the word 'Basis.' In this column you will find for each group of business those classifications which are most active in 'sales' for the month. These statistics are authentic and will furnish you with a guide as to when you should start active solicitation and follow through with intensive selling so that you reach the buyer of printing at the time he is planning literature to assure the result of these peak sales periods.

"Column three, 'Literature and Themes,' gives you information intended to start your thinking on what to sell the prospects represented by the businesses in column two. A study of these cues and suggestions should enable you to anticipate the buyers' needs with timely, worthwhile suggestions.

"'A Thought To Promote This Month,' column four of the calendar, is included to stimulate ideas for printers to use in their own company promotion, as well as to supply printing salesmen with talking points of interest to clients and prospects.

"For instance, Customer Control, which is the thought of the month for January, is carried out further in February, March and April. The combined thoughts of these four months could be used as a basis for planning a complete campaign, especially for retailers, where customer control is essential and has proved highly productive of results when intelligently planned and *thoroughly* executed. Apply these customer control principles to your business. Apply them to any business. They are fundamentally sound.

"The last column in our calendar covers 'Each Month's Events Affecting Advertising and Selling' and is self-explanatory. The lower portion of this column is devoted to ways that 'Direct Advertising Can Be Used Profitably.' (This feature does not appear in April Calendar.—Editor.) These uses continue through the calendar, and when you reach December you will find that there are 49 important ways that Direct Advertising can be used profitably. (With thanks to the Direct Mail Advertising Association from whom this information was obtained.) These highlights of Direct Advertising should add to your store of selling ammunition. Use them. Promote them. Sell them.

"Whether or not you are a creative printer, use the Printing Salesman's Calendar to think creatively about the fundamental aspects of the sales promotion job you want to do to meet that which your prospects want to do. Printed literature precedes and goes hand in hand with the selling job to be done by most classifications of business. Peak months and seasons are the result of intelligent promotion keyed to the logical time of buyers' and consumers' demand.

"Concentrate on your prospects with a reasonable, timely certainty that they are ripe for suggestions and printing orders. Build your selling to a point where you can anticipate each buyer's needs so that instead of asking him what and when he may need something, you can tell him and sell him."

THE PRINTING SALESMAN'S CALENDAR

April

THE PRINTING SALESMAN'S CALENDAR

Printing Salesmen and Executives — Study this calendar as a guide for planning your personal contact and promotion programs for 1938. It is designed to provoke thought on your part as to WHERE, WHEN and WHAT to sell. Possibilities are limited only by the ingenuity of the individual.

Business Classifications	Basis for Timely Concentration on Most Active Businesses	Literature and Themes	A Thought to Promote This Month	This Month's Events Affecting Advertising and Selling
MANUFACTURERS . . . Industries in which this month's sales are 10% or more of annual volume. Start active solicitation 2 to 4 months before peak months indicated; intensify solicitation 1 to 3 months before, depending upon nature of industry, selling habits and policies. (Percentage figures represent this month's percentage of annual sales)	Auto Accessories 10% Automobiles 10% Brass Foundries 10% Brick & Tile 10% Building Specialties 17% Buttons 10% Canners (Fr. & Veg.) 10% Caskets 10% Feed 12% Hosiery 11% Incinerator 11% Lumber 13% Machine Tools 10% Motors (gas.) 15% Musical Instruments 10% Overalls 11% Packers 13% Radiators 11% Road Equip. 17% Screens 22% Shirts 13% Shoes 11% Surgical Instruments 12% Steel Products 10% Textiles (cotton goods) 10% Textiles (woolens) 11% Tools (Carpenter's) 10% Tools (Thread Cutting) 10% Trucks 13%	Second quarter of year begins. Dividend folders, company good will and prestige. Finale of Easter promotion. Intensify change of season promotion through straight line selling ideas through company salesmen, branch offices, jobbers, dealers, door-to-door and mail order. Anticipate May and June needs, particularly clothing, building trades, home furnishings, beauty aids, auto accessories, gas and oil, appliances, also gift literature—graduations. Mothers' Day, weddings, anniversaries, social and sport. Supplement other forms of advertising with consumer literature, by mail, over the counter, door-to-door and with package inserts.	**CAMPAIGNING FOR NEW ACCOUNTS** The third important step under the heading of Customer Control is the securing of new business from Prospective Accounts. Here is a simple formula on which to build a plan suggesting the use of Direct Advertising for new business. 1. Locating prospects: a. In present territories. b. In new, profitable markets. c. Building mailing list and classifying prospects. 2. Selling the prospect: a. On a mail order basis. b. Developing leads or inquiries. c. Following up these leads by mail or through personal selling. d. Bringing prospect and product together. e. Overcoming resistances and offsetting competition. f. Building good will and prestige by selling company and service. 3. Re-classifying into present or active accounts for follow-up campaign designed for that group under the second step of Customer Control.	April 1-7 CONSERVATION WEEK National Life Conservation Society, Mrs. C. C. Marshall, 2239 Tiebout Ave., New York 2-9 SPORTSMEN'S SHOW, National (in Detroit) Campbell-Fairbanks Expositions, Inc., 327 Park Square Bldg., Boston, Mass. 3-10 NEGRO HEALTH WEEK, National Public Health Service, U. S. Treasury, Washington, D. C. 4-7 DISPLAY WEEK, National International Association of Display Men, DeSoto Hotel, St. Louis, Mo. 6-May 8 CIRCUS AT MADISON SQUARE GARDEN, NEW YORK Ringling Bros. Barnum & Bailey, Sarasota, Fla. 15 FISHING SEASON OPENS (Most States) 16 LENT ENDS 17 EASTER SUNDAY 17-23 †GARDEN WEEK, National Gen. Federation of Women's Clubs, 1734 N. St., N. W., Washington, D. C. 19-24 BRIDGE TOURNAMENT, GRAND NATIONAL IN NEW YORK U. S. Bridge Association, 30 Rockefeller Plaza, New York 20-30 ELECTRICAL AND RADIO EXPOSITION, National National Elec. & Radio Exposition, Inc., 480 Lexington Ave., New York 22-28 HEALTH PROMOTION WEEK 23-30 †FISHERMEN'S WEEK, National Sporting Goods Dealer, St. Louis, Mo. 24-30 BETTER HOMES WEEK, National Purdue Research Foundation, Lafayette, Ind. 24-30 BE KIND TO ANIMALS ANNIVERSARY American Humane Association, 80 Howard St., Albany, N. Y. 24-30 UNITED STATES-CANADA WEEK Kiwanis International, 520 N. Michigan Ave., Chicago 25-May 7 †AMERICAN TOY FAIR Toy Manufacturers' Association, 200 Fifth Ave., New York † Tentative
WHOLESALERS Full service and limited function wholesalers.	Groceries 10% Hardware 10% Lumber 10% Wall Paper 13%	Use information on Manufacturers and Retailers as a gage for determining timeliness of wholesalers' activities, cooperation, service and sales helps.		
RETAILERS Under heading "Department Stores," use departments of greatest consumer demand for this month as a guide for determining further which classifications of retail stores are currently most active. (Percentage figures represent this month's percentage of annual sales)	Automobiles 15% (Peak month of year) Lumber 10% Clothing and Accessories—Men & Women Food and Candy House and Garden Sporting Goods & Toys (Indoor and Outdoor) DEPARTMENT STORES (This month's greatest consumer demand) Silks & Velvets 12% Woolen Dress Goods 12% Wash Goods & Linings 10% Laces, Trimmings & Embroideries 10% Neckwear & Scarfs 10% Small Leather Goods 10% Women's & Misses' Coats & Suits 11% Appliances (Electrical and other) 11% Children's Shoes 12% Blouses & Skirts 11% Women's Shoes 11% Ribbon 11% Dresses 10% Girls' Wear 10% Boys' Wear 11%	New & Used Cars. Accessories. Dealer mailings to consumers. Special campaigning to home owners & builders. Easter season, fashion parades. April showers. School clothes, sport clothes, accessories. Easter candies, fruits, food specialties. Garden furniture, trellises, window boxes, sand boxes, etc. Hardware, tools, garden implements, fertilizers, seeds, nursery products. Baseball, golf, fishing and other sport equipment. Children's toys. DEPARTMENT STORES This is Easter month and Department Stores will produce special printed literature for the seasonal appeals. Concentrate on this business with ideas and personal selling effort. APRIL produces 8.4% of the average store's total annual sales and ranks 4th among all months.		
SERVICE ORGANIZATIONS	Hotels 10% Real Estate 10% Banks Insurance—Automobile 10%	Promote guests—bars, restaurant, entertainment features. Getting ready for May moving and Summer deals. Second quarter announcements and promotion. Seasonal appeals. Expired policies. Heavier driving.		
PHILANTHROPIC and WELFARE AGENCIES Begin active solicitation 1 to 2 months before.	Fresh Air Camps Chambers of Commerce	Fund raising drive for children's Summer programs. Membership drives.		

TECHNICAL VS. RULE-OF-THUMB METHODS IN LITHOGRAPHY

An Address by PROFESSOR ROBERT F. REED, Research Director

Lithographic Technical Foundation, Inc.

Given at New York Trade School, 1938

THIS talk has been prepared a few minutes at a time since I arrived in New York on Tuesday morning, so if it doesn't seem to be as connected or as sensible as it ought to be, I hope that you will help me by raising questions afterwards.

As all of you realize, the nature of lithography makes it necessary for operators to be specialists. The lithographic process is a combination of operations differing so greatly in nature that if an individual learns one branch well, he has really accomplished something; he is entitled to be called an artist.

Process Divides into Six Groups

Briefly, the lithographic process may be broken down into six groups of operations: Preparation of the original, photography, tone and color correction, plate making, printing, and finishing. If any man learns one of these branches well, he really has accomplished something.

"Share Your Knowledge"

By tradition the lithographer is an individualist. He should be an expert with knowledge developed through long experience, and should therefore command the respect of his coworkers. In the past, he has often been inclined to be secretive about his methods, but this attitude is gradually passing because lithographers, like technicians in every other industry, have found that if they do not exchange information they do not gain much information and no one man can by any chance corner all knowledge in any field.

An individual's success depends upon collective success and, after all, success in any business nowadays depends upon team-work. The individual doesn't make a success alone, although he can easily cause collective failure. Working on a team requires that the individual must know not only his own job, but also how his work fits in with the work done by the others with whom he is working. In other words, he must be practical in his outlook.

Rule-of-Thumb

With this as an introduction, I want to define the two terms in the title of my talk: "Technical Methods vs. Rule-of-Thumb Methods in Lithography." In the early days of electricity, it was discovered that an electric current produced a magnetic field around a wire and that the wire was affected by a magnetic force. To illustrate this a simple rule was developed in which the thumb and two fingers were used to indicate the relationship between current, magnetic force, and thrust on the wire. For example, if the current is flowing in the direction indicated by the index finger, and the magnetic flux is in the direction indicated by the middle finger, the thrust on the conductor will be perpendicular to the flow of current as indicated by the thumb. The position of the fingers represented to the individual a means of keeping this relationship in mind: namely, the relationship between the current, the magnetic force, and the direction of movement of the wire. This was a valuable assistance in understanding what happened in motors and generators.

I only mention this rule because it is termed a rule-of-thumb. There are a number of other simple rules which tell what will take place under a given set of conditions. They show direction but they do not tell how much. In other words, they are qualitative, but not quantitative. The term "rule-of-thumb," therefore, came to be applied to all methods which are based on judgment and experience rather than on accurate scientific or technical knowledge.

Technical Methods

Now technical methods, on the other hand, are necessary in designing a motor or a generator. The designer must know the amount of current, the amount of magnetic force and the amount of thrust on the armature in order to create an efficient motor. Knowledge of the rule-of-thumb type alone would not make a designer. In other words, to create a machine for a specific purpose, one must have quantitative knowledge, and consequently technical knowledge.

Since I am talking about technical methods, let me use another illustration closer to your experience. I will put you in the role of chemist for the time-being. Just imagine that you had discovered ammonium bichromate and were going to make it on a commercial scale. You had found, let us say, that by adding some ammonia to chromic acid, and allowing the mixture to stand, ammonium bichromate would crystallize out. If you did this day after day, without careful measurements, you would naturally find that the quantity of material obtained would vary. Then you would find that by weighing out the chromic acid and the ammonia, you would get very much better results; but you would still encounter variations in quantity and quality from day to day. Later on you would notice that temperature had something to do with this variation, so you would control the temperature at which crystallization takes place, and you would get even more uniform results. But since the uniformity still would not be as good as you would like it, you would look around for some other factors which affect the yield and quality of your material. You would soon find that the raw materials themselves, the chromic acid and ammonia, vary to some extent in concentration, and

PROFESSOR ROBERT F. REED

you would have to have them analyzed in order to put them together in exactly the right proportions. This illustrates simply the application of technical control methods. You could make bichromate after a fashion without doing any of the things mentioned but you couldn't make a satisfactory product commercially.

Lithography Has Outgrown Rules-of-Thumb

Now then, let us consider technical methods as applied to lithographic processes. There are so many steps in the lithographic process and so many variations possible that it is hard to compare lithography with any other industry. Lithography has grown up through rule-of-thumb practice, but is beginning to outgrow it. The demand for production and quality nowadays requires more than can possibly be done with the aid of qualitative knowledge alone.

In the photographic process, for example, there are many variables. Different types of copy vary in texture, density and contrast, and require variations in camera technique. It would require trial after trial to produce good results without a suitable working system. For this reason, various methods of control, involving adjustment of camera extension and screen distance to diaphragm opening have been worked out. These represent a step in technical control.

In developing and fixing photographic plates many photographers still do not weigh or measure the quantities of material with which they make up their solutions, and they carry out these operations entirely by observation. Of course, they have had experience, and have developed expert judgment in controlling the developing and fixing operations, and the necessary intensification and reduction.

It has been demonstrated, however, without any doubt, that some of the photographic operations are not and cannot be satisfactorily controlled by observation and that a very much better job can be done by applying technical methods. Reasonably exact control of the composition of developers, hypo, and other solutions, is helpful but, of course, cannot be complete. These solutions undergo changes with use, but, for reasons of economy, they cannot always be discarded at the first sign of deterioration. In this case, technical control must be tempered with common sense and logic.

Time, Temperature, and Density Controls

You have, no doubt, heard about time and temperature control, and the use of density measurements. Motion picture photographers have found that they cannot rely on observation for control of exposure and the development. They must use a film of a definite sensitivity, illumination of a definite intensity measured by an exposure meter; and then they must control the development by time and temperature. The most recent innovation in that industry is photoelectric density control. The time required for the film to pass through the solutions is actually controlled by density measurement with a photoelectric cell, so that density is automatically kept uniform in the finished film.

In lithography, it isn't practical to use any such mechanism as this but it is possible to apply the same principles. The original copy can be tested with the densitometer and its density range and contrast determined so that the proper exposures may be given, and the diaphragm openings, camera extension and screen distance adjusted so that the result will be correct the first time.

If the exposure is correct, the next problem is to secure satisfactory development of the exposed plate. Judgment, while it may be very good in the case of an experienced operator, is not as dependable as the method of time and temperature development that has been worked out by the Eastman Kodak Company and others. Manufacturers of photographic materials have done a great deal of work on this method of control and can supply the necessary data.

Densitometric Control is Important

The photographic negative, that is, the first reproduction of the original, must be rephotographed, the object, of course, being to get a screen transparency having the proper density range and tone values for making the printing plate. In the past, this has been accomplished by judgment based on visual observation alone, but some plants are now finding it of great value to use densitometric control. Systems have been developed in which density range and contrast control is used throughout. These produce much more uniform and dependable results in both monochrome and color separation negatives and positives for reproduction. All of this is technical control. Its application is increasing and it is difficult at the present time to say how far it will go. It is possible, of course, to see many things that could be controlled, but which at the present it does not pay to control, possibly because of insufficient knowledge.

The First Step in Plate Making

In plate making, the first step is graining the plate. Production of a uniformly satisfactory grain is a problem in most shops. I doubt if any shops are entirely satisfied that they have the best possible grain or that they can get the same grain every time. There are many factors which determine grain: the density and hardness of the metal; the type of abrasive; the amount of moisture; the number and size of the marbles; and speed and radius of gyration. Graining is in reality a very complicated process, and one very difficult to standardize. The principal trouble is that we do not yet know how to measure the quality of the grain; we must still depend on control by observation.

Coating Solutions

The next item in plate making that is susceptible of control is the coating solution. Considerable work has been done on this, and no doubt some of you have read the Foundation's recommendations. Some of the most important of these are the use of the hydrometer, pH control of ammonia alkalinity, control of the bichromate-colloid ratio, and adjustment of exposure to the sensitivity of the coating which is greatly affected by atmospheric humidity. None of these things were done formerly, and there were many unaccountable variations. I think those who have tried the new methods will agree that there is a definite improvement. There are still some things, however, that we do not understand and further improvements will probably be made when the necessary information can be obtained by research.

Take the albumin coating, for example. For many years it was general practice to dissolve a given weight of egg albumin in a given volume of water, then add a weighed amount of ammonium bichromate and enough ammonia to change the orange color of the solution to straw-yellow. The mixture was finally strained through a cheesecloth before coating the plate. With this practice there was much variation in the quality and durability of plates for which several reasons were found. In the first place, it was found that part of the albumin was insoluble and inactive, but was dispersed throughout the solution and could not be strained out. This insoluble portion varied from one lot of albumin to another with the result that the active albumin in the solution varied, and so did the bichromate-albumin ratio. This source of variation was removed by dissolving albumin in a cheesecloth bag, which prevented dispersion of the insoluble portion. The density of the solution was then adjusted to yield a definite albumin concentration in the coating solution.

In the second place, it was found that the amount of ammonia added to the bichromated-albumin solution had a marked effect on light-sensitivity of the coating, and that a straw color might mean anything from pH 7.0 to pH 10.0. This variation was eliminated by controlling the pH value of the solution.

Compensation for Humidity Changes

I mentioned the adjustment of exposure to compensate for humidity changes. It was found that the sensitivity of the albumin coating varied more than 100 per cent. In other words, the coating was found to be twice as fast at about 60 per cent relative humidity as at 30 per cent. This holds true for all bichromated colloids that we have tested. There may be some that are not affected, but so far we have not found them. To be sensitive to light bichromated colloids seem to require a small amount of moisture, and these colloids being hydroscopic, the moisture is usually present. If they are dried out completely, their sensitivity drops almost to nothing, but under ordinary atmospheric conditions there is always moisture present. The sensitivity increases with humidity because the moisture in the coating increases in proportion. Therefore, if we cannot control the humidity of the atmosphere we must compensate for humidity changes. That is technical control. If we can control humidity, that is also technical control and is more satisfactory than compensating for variations in humidity.

In the deep-etch processes the same general principles hold true. Solutions should be checked wherever possible, because anybody can make mistakes. Even though a solution is prepared according to formula there is chance for error, and the error in such cases cannot easily be observed. It is best to check the finished solutions. This can be done by testing for density with the hydrometer, and for acidity or alkalinity with pH indicators.

(*To be concluded in April issue*)

McCandlish Exhibits Result in Record West Coast Meetings

Exhibition recently of the film, "The Making of a 24-sheet Poster," and the Gallery of European Posters by A. R. McCandlish, president of McCandlish Lithograph Corporation, Philadelphia, before the Advertising Clubs of Los Angeles, San Francisco, and other West Coast cities, also art schools and the advertising departments of leading West Coast advertisers, resulted in meetings that were outstanding from the standpoint of interest and attendance.

IMPORTANCE OF EXTREME ACCURACY OF PRESSURE IN OFFSET LITHOGRAPHY

By C. W. LATHAM
Lithograph Mechanical Advisor

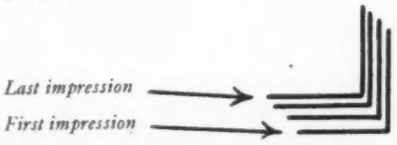
IN discussing the subject of pressure as applied to offset presses it is impossible to refrain from repeating some of the statements made in other articles about so interesting and important a phase of lithography. In the instance of pressure, however, repetition can hardly be overdone due to the fact that every discussion is bound to find new readers and bring forth at least a few new angles.

For the sake of orderliness we will separate our discussion into two major parts, the first being that of the effects of excess pressure, and the reason for these effects and, second, how to arrive at proper pressures. The reason for classing all improper pressures under the head of excess pressure is that our troubles come from excess pressure and not from insufficient pressure. Too light a pressure is so quickly discernible and so easily recognized for what it is that we can dismiss it as being elementary.

The Effects of Excess Pressure

The pressure that we are first interested in is that between the blanket and the plate which we will call plate pressure, and that between the blanket and the back or impression cylinder which we will call the back pressure. Probably the most common trouble caused by excess back pressure is paper distortion.

Showing what happens when a sheet is fed through the press four times under excess back pressure

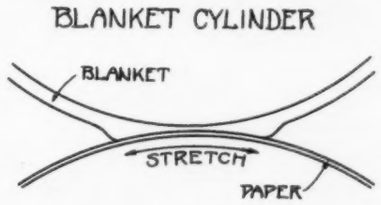


There are other contributing factors in the distortion of paper, but as we are here concerned with pressure we will assume that the paper is of a suitable type for offset, that it has been properly conditioned, that it is perfectly straight cut and without wavy edges and that cylinder stops and other press adjustments are correct.

Paper being slightly elastic, may be stretched up to a certain point, from which it will return to approximately its original size. If this certain point or elastic limit is exceeded, the paper will remain permanently stretched. This elastic limit varies greatly with the type of paper and with its moisture content, but good printing may be accomplished on average offset paper under average weather conditions, using a back pressure that will not stretch the paper beyond its elastic limit. It is assumed that we all agree that when a piece of paper is squeezed between a smooth iron surface and a rubber blanket, it will stretch in proportion to the amount of pressure applied.

The reason for this is that rubber, contrary to common belief, is not readily compressible and when depressed at one point, it spreads out and bulges at a point of less external pressure. Now when the blanket spreads both ways from the line of contact between the two cylinders, it carries the paper with it due to the higher coefficient of friction of rubber, over that of polished metal. The paper, then, may be expected to spread with the rubber, but if this spread or stretch, due to excess pressure, exceeds the elastic limit of the paper, the paper will be permanently distorted and succeeding colors will be very difficult to fit.

The most common effect of excess plate pressure is that of slurring, tails on dots, chain dots, and fuzzy type. Under this condition the printed image shows more general strength and flatness than the image on the plate and if the pressman tries to overcome this condition by increasing the strength of acid, the result is likely to be a short-lived plate. It is common practice to blame these ills on improper cylinder diameters and in general this is where the fault lies, but it must be remembered that pressure has a direct and indirect bearing upon cylinder diameters.



Showing how blanket, squeezed at point of contact between cylinders, spreads outward and stretches paper

The indirect bearing that excess pressure has is that it stretches paper and makes it necessary to change cylinder diameters in order to make succeeding colors fit the first color. The direct bearing that pressure has to cylinder diameters is due to the incompressibility of rubber and its tendency to creep, thus the greater the pressure squeeze between the blanket and plate, the greater the diameter of the blanket cylinder *in effect*. By this we mean that if the plate and blanket are so packed as to give identical surface speed over normal pressure, the surface speed of the blanket will increase when this pressure becomes abnormal. This difference in surface speeds causes creep and results in distorted dots, and even streaks.

Even without exhaustive research it is a safe guess that excess pressure has a direct bearing upon the life of a plate. The creep of the blanket, referred to in the foregoing paragraph, will certainly have a flattering and a polishing effect upon the grained surface of the lithographic plate, resulting in scumming, unless the condition is balanced by increasing the dampening water or the strength of the acid.

It is hardly necessary to go into the

harmful effects of excessive moisture and acidity, except to point out that a flat plate can not carry enough moisture down in the grain and the result is surface moisture. Free surface moisture in turn takes the snap out of the print, and together with high acidity makes it difficult to prevent emulsification which causes a lifeless, cakeing ink. This situation will soon have the plate in a condition where the image, only partially protected from excess moisture of high acidity,

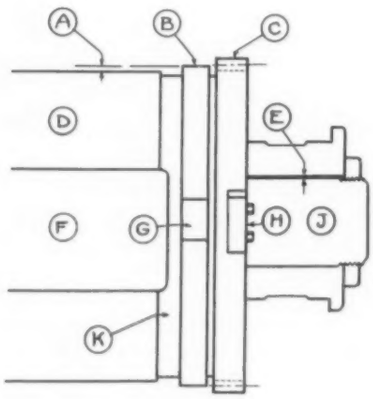


Diagram of press cylinder
A—Undercut
B—Bearer
C—Gear
D—Body of cylinder
E—Bearing clearance
F—Cylinder gap and clamp space
G—Bearer flat
H—Adjustable gear segment
J—Journal
K—Gutter

by so lifeless an ink, will become sharp and the dopeing of the ink will only prolong the agony. So we have a vicious circle that leads us back to excess pressure.

We do not presume to say that proper pressure will always cure all of these conditions. If the grain is not right in the first place, or if the ink is improperly made, or if the pressman lacks the necessary skill in water regulation or the platemaker has made a plate not up to par, these troubles will occur in spite of perfect press setting. We merely wish to call attention to the possibilities of damage that may be caused by an evil that does not get enough attention, and to make lithographers a little more pressure conscious.

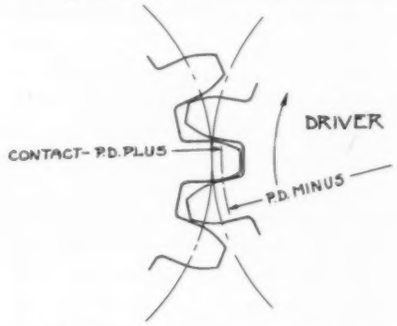
To Obtain Proper Pressures

To arrive at proper pressures is not as easy as it appears. There are many pitfalls to beware of and many misleading indications to be avoided. The first thing that we must realize is that the only reason for using any amount of pressure or squeeze above one point of one one-thousandth is to take care of the roughness of the stock, the variations in thickness of our packing paper, lithograph plates, blankets, and the imperfections in the press cylinders themselves. Present day zinc and aluminum plates of the better grades will be found to vary only one point or less, and the same can be said of blankets. The total variation in thickness, in the total amount of packing used, including the paper upon which the press is printing, should be less than one point. Now assuming that all of these inaccuracies should coincide, that is, the thin areas of the plate, blanket and paper should inconceivably come in the same spot, we would still not need more than a four point squeeze to get good printing all over the sheet.

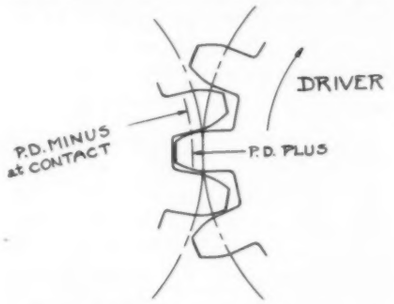
Once we have convinced ourselves that the above statements are true in practice as well as in theory, the next step is to set up our press with exactly four points squeeze and see if it will print. If it does, our point is proved and if it does not, our point is not disproved so do not throw away our theory but look for the cause of this misleading indication and it will probably be found in the press cylinder itself.

Now about the procedure of setting up pressures, and at this point we introduce a third and very important one, that of bearer pressure between plate and blanket cylinders. It may be of interest at this time to touch upon the theory of bearers to the extent of explaining that they are meant to take over the duties of the cylinder gears during the greater part of the revolution of the cylinder when the printing pressure is on. We say the greater part of the revolution because there is a flat spot on the bearer at the gap of the cylinder and at this point the bearers cease to function and the gears take over for perhaps two or three inches of the circumference in order to get the cylinders away at the same point again. It is important to keep this flat open, and as the bearers wear down, it will sometimes be found necessary to file down the surface at this point.

Without going into gear phraseology, we will attempt to explain why bearers are necessary by saying that one gear does not drive another in a true, continuous speed, rotary motion, but rather a vibratory series of accelerations and decelerations due to the base of the gear tooth doing the driving at one instant and the outer



At this point the driving *gear is rotating at a higher speed than the* driven *gear because the point of tooth contact is closer to the center of the* driver, *making the* driver *a smaller gear* in effect

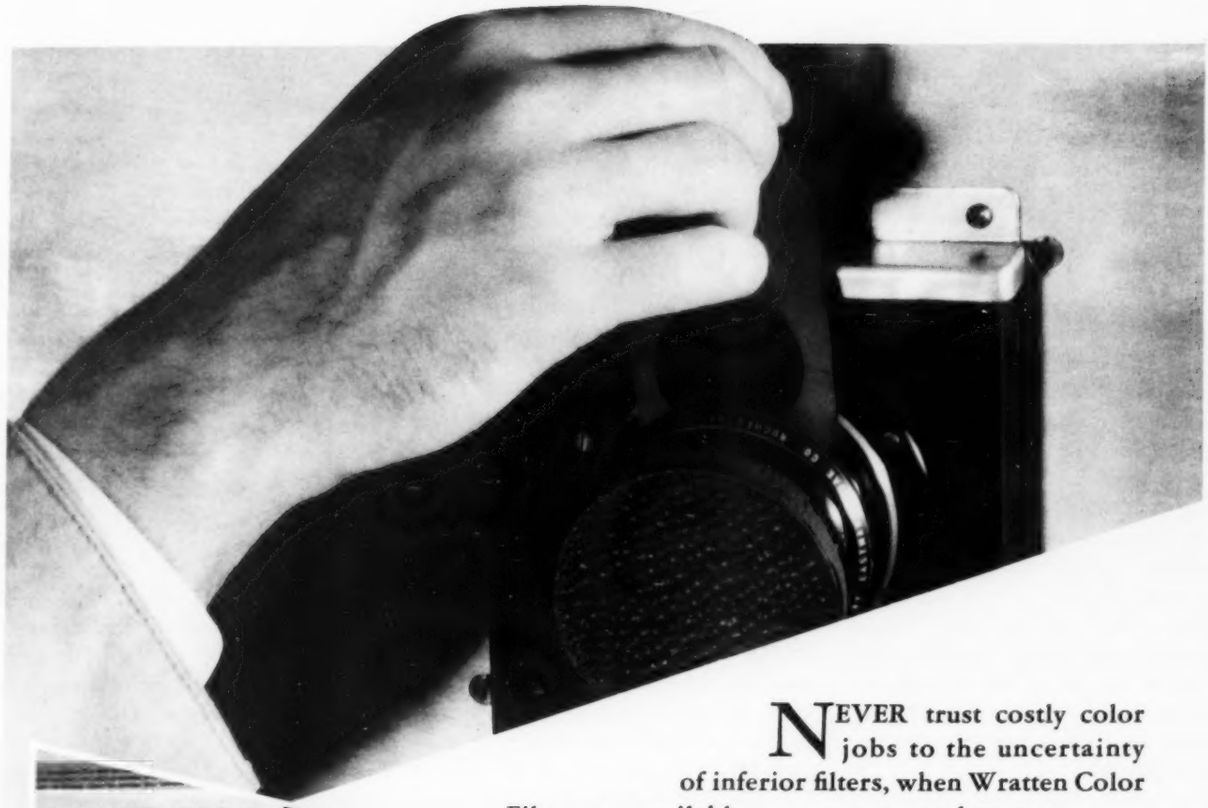


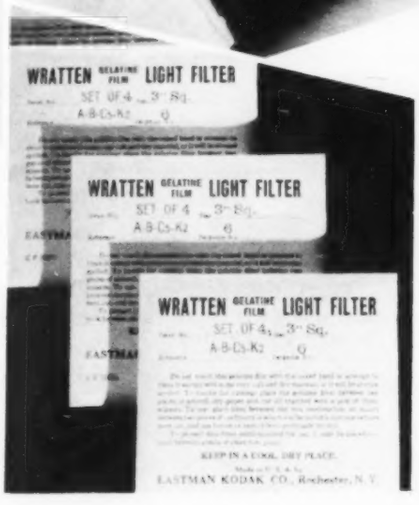
At this point the driven *gear is rotating at a higher speed than the* driving *gear because the point of tooth contact is closer to the center of the* driven *gear, making the* driver *a larger gear* in effect

end the next, so bearers are put in at approximately the pitch line to do the driving, and when properly set up they will do the driving in such a way as to keep the teeth of the gears from touching.

Our problem in adjusting bearer pressure is one of getting enough pressure to be sure that the bearers actually do the driving and not the blanket, for if we have excess pressure between the plate and blanket, and insufficient bearer pressure, the bearers will slip and the gears will again be thrown into contact, resulting in gear streaks.

Protect Expensive Color Work with WRATTEN FILTERS





NEVER trust costly color jobs to the uncertainty of inferior filters, when Wratten Color Filters are available . . . many at very low cost.

Wratten filters are made in three forms: plain gelatine film—cemented in "B" glass—cemented in "A" glass. All are universally recognized for accuracy and reliability, and the glass-mounted filters are optically tested with specially designed precision instruments before they are shipped.

Knowing the right filter for each type of work is as important as using the best filter made . . . and we invite inquiries regarding specific filters for specific jobs. For complete list of sizes and prices, write for the Eastman booklet "Price List of Filters for Photographic and Scientific Purposes."

EASTMAN KODAK CO. *Graphic Arts Dept. Rochester, N. Y.*

The first step in settling bearer pressure is to take the slack out of the cylinder bearings. If the press is quite new, and has bearings of the preloaded, frictionless type it may be that bearing slack may be ignored, but on the older type of press with plain bearings, the procedure is as follows:

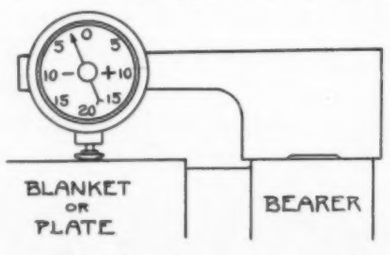
Using an old blanket, build it up to a point ten to twelve points above bearer level, and build the plate up to a point that is level with the bearers. This is to lift the weight of the plate cylinder and take out the upper clearance of the bearings when the press pressure is applied. Now tap out some ink spots on both blanket cylinder bearers, tapping them down to a thin film. Next back off the pressure adjustment about six thousandths and turn the press over with the pressure on. It is probable that the ink spots will not be transferred to the plate cylinder bearers, so the next step is to put back one point of pressure and try again. Repeat this procedure until there is a slight indication of contact, and if this contact occurs on one end of the cylinder before the other end, then bring up the other end until both are equal. The final step is to put on the squeeze pressure by adding four more points of adjustment.

Now to arrive at a true four point squeeze between blanket and plate, the first thing to determine is the true undercut of the cylinders, and the undercut of a cylinder is the difference between the radius of the printing surface and the radius of the bearer, or in more simple terms the amount the printing surface is actually below the bearer surface. On a new press, the manufacturer's markings may be used if they can be found, or the manufacturer will gladly furnish this information, but on an older press, these markings are often wrong due to the wear of the bearers. When there is a possibility of worn bearers, then the true undercut must be determined, and this may be done with the proper use of a surface dial gauge or with a straight edge and feelers. This is not an easy thing to do, and requires an experienced mechanic to get an accurate result.

You may now proceed to pack the blanket and plate in the manner that will give as near a coinciding surface speed under a four point squeeze as possible, so that the printing surfaces will not fight the bearers, for if they do there will be a periodic escapement of the stored-up blanket tension which may be compared to the chatter of a tight bearing, causing streaks. It must then be remembered that no matter what method of packing you wish to use, the combined thickness of all packing, plus the thickness of plate and blanket must be just four points greater than the sum of the two undercuts to get exactly four points of squeeze and when you have this amount of squeeze, printing pressure is a mathematical certainty, if the press cylinders are true.

If after arriving at a true four point squeeze, there are unprinted areas on the blanket, it is almost a certainty that there are depressed areas in the press cylinders and this condition is a very common one, occurring in probably more than half of the presses over a year old. The remedy for this condition is decidedly not the usual one of increasing the squeeze. The only safe method is to have the cylinder trued up by one of the methods that will be explained later.

Right at this point it may be well to warn against blanket swell caused by the absorption of oils. This swelling may be held to a minimum by following certain rules but cannot be eliminated entirely, so the wise pressman who wishes to retain a kiss pressure after once obtaining it will watch for swelling and remove packing when it occurs. A simple application of the dial type surface gauge is



Simple application of deal gauge for checking plate and blanket in relation to bearers. Can also be used to measure undercut and blanket swell

very valuable in making a periodic check of blanket swelling throughout the day. If packing is removed during the day, it will sometimes be necessary to replace some of it the following day, due to the spreading of the absorbed oils, which reduces the swelling at the printing areas.

Now that we have the plate and blanket cylinders properly set, the next step is the back pressure or the impression cylinder squeeze. There are many excellent methods for determining this pressure and for those presses that have a detachable covering, on the impression cylinder the manufacturer's instructions should be followed. For presses that have a naked impression cylinder that is easily adjustable and most of them are, a simple method is to back off this cylinder to a point that will not give any impression at all when blank sheets are run through the inked up press and then add pressure in steps of one point at a time until the first indication of printing occurs. Then add three more points of adjustment and the correct pressure is set. It should be unnecessary to mention the fact that these blank sheets must be the same thickness as the paper to be run and that the press pressure must be on when running the test sheets.

If after setting up pressures in this way, it is found that there are any unprinted areas, it does not mean that the setting is wrong, and it certainly does not indicate that the thing to do is to put on more pressure even though a few more points of pressure may apparently overcome the difficulty. If the blanket is in good condition and free from punctures and depressed spots (and it probably is if it is taking ink from the plate after being set up as previously described) then the trouble is probably due to depressed spots in the impression cylinder. The use of blanket underlays is a well understood practice and will not be explained here, but a word of warning is in order and that is to confine this practice entirely to obtaining proper impressions between plate and blanket. Any underlaying of the blanket, done for the purpose of balancing low spots in the impression cylinder, is going to cause excess pressure between blanket and plate at these

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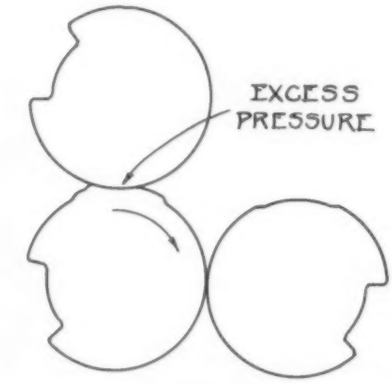
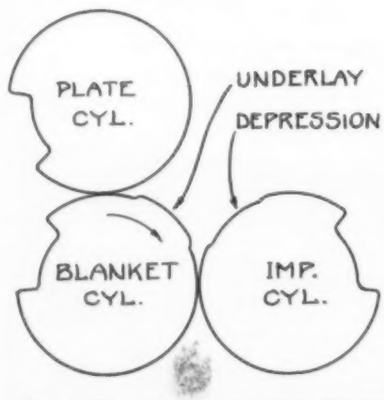
points and result in those evils mentioned earlier in this article.

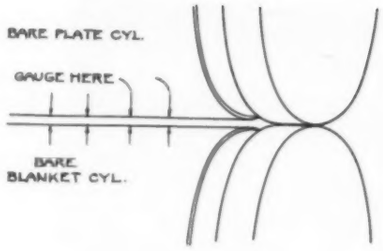
It is all too common a practice, when checking for back pressure, to start at the wrong end of the pressure scale. Instead of starting with zero pressure and then adding four points, it is too often done by slacking off pressure only until blank areas appear and then put back enough squeeze to fill up these areas. Plainly enough, this gives no indication of what the total amount of pressure is and leads nowhere in finding out the true condition of the cylinder or what is causing paper distortion.

There seems to be a tendency on the part of lithographers to take it for granted that press cylinders remain true over any period of time, unless a wrench or a loose part of the press is accidentally run between the cylinders. This attitude leads to confusion and their inability to run down some of the seemingly mysterious problems that confront them. A survey of the condition of press cylinders will disclose a surprising





Showing how underlays cause excess pressure areas when used to make up for depressed impression cylinder.



Showing simple way of measuring combined undercuts and testing for depressions in cylinders

number of them with large depressed areas measuring in depth from two to eight thousandths. It is impossible to obtain kiss pressure printing with cylinders in this condition and the obvious thing to do is to get them trued up. A periodic checking of cylinders should be made a routine duty of the press room foreman and cylinders should be conditioned on the same basis as rollers are recovered or new blankets put on.

Until lately it has been considered a major operation to true up a cylinder because it involved dismantling of the press, trucking, coating, grinding, and reinstallation, and was only resorted to in extreme cases. However, it is now possible to have cylinders treated right in the press to accurate diameters without grinding and with very little loss of time, so that even if your type of work is hard on cylinders and it is necessary to have them touched up twice a year, it is certainly worth while to obtain kiss pressure printing.

Hard-Tex Inks Offered Free for Press Trials

A recent mailing of a very cleverly done letter and folder by The Fuchs & Lang Manufacturing Co., New York, strongly encourages lithographers in the metal decorating industry to try out for themselves Hard-Tex Inks, and to test the unusual claims made for them.

One enclosure is an actual piece of metal, lithographed in Hard-Tex Black. The lithographer is invited to dig into it with his nail (if he can), and give it a severe draw.

In addition, a trial lot of Hard-Tex Black is offered free of charge, so that a thorough press trial can be made.

Wolf Package Awards Announced

Lithography played an important part in the production of more than 750 packages, developed during 1937, which were entered in the Seventh Competition for the Irwin D. Wolf Awards for distinctive merit in packaging. The competition, sponsored by the American Management Association, closed in February with the completion of awards by a jury of men well-known in art and advertising.

The ensemble cleaner carton and cleaning tool kit of the Hoover Company, designed by Henry Dreyfuss, was awarded the Irwin D. Wolf Trophy.

All entries in the Competition will be on display as a featured exhibit in the Eighth Packaging Exposition, to be held at the Palmer House, Chicago, March 22–25.

Aside from the recognition of outstanding merit, provided by the Wolf Competition, it has served as an incentive to lithographers to cooperate closely with manufacturers in the creation of packages that will both arouse consumer interest at point of sale and then sustain consumer good-will through the greatest utility after purchase.

Establish Fellowship at L. T. F. Laboratory

The Sinclair and Valentine Company recently established a second fellowship at the Research Laboratory of the Lithographic Technical Foundation, Inc.

R. R. Heywood, president of Sinclair and Valentine Co., who is also president of R. R. Heywood Co., Inc., New York, and a director of the Lithographic Technical Foundation, in his letter to the Foundation announcing the decision of his company to establish the second fellowship, said, in part: "You may be assured that we consider it a pleasure and a privilege to establish this additional Fellowship. Please bear in mind that we are always ready and willing to do anything possible to further the progress of the lithographic industry."

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STUDIES IN SALES MANAGEMENT

For Administrative Heads and Ambitious Salesmen

By WILLIAM WOLFSON

Part Four

THE last installment was devoted to the importance of adequate knowledge a photo-offset lithographic salesman must have. Mention also was made of the selection and the training of salesmen. This month we go further into the matter of training; outline some methods; and discuss some psychological aspects of selling in our specialized field.

Most books on selling follow a well-known formula: approach; awakening interest; developing conviction; overcoming objections; closing the sale; etc. These divisions are all right insofar as they provide classifications for convenient study of phases of selling. However, they are not to be regarded as inviolable.

Modern business psychology attacks the problem from a different angle. It starts with the wants of man—primary, secondary, and tertiary wants. When wants in relation to selling are studied, many interesting angles merge.

For example, often salesmen consciously or unconsciously emphasize their own wants and the wants of the house they represent. It is natural to concentrate, dwell upon, and be influenced by one's want for business and commissions. These exert influences which work against the salesman. For, you see, every prospect and every customer has wants of his own. *It is the wants of prospects or customers the salesman must consider if he is to succeed.*

Assume there is but one photo-offset house in a city. Furthermore, there are no printers, letter shops, or other graphic arts producers. This house (and its salesmen) wants business. The business houses want reproductions. In such event, the photo-offset house and its salesmen can concentrate all they care to upon their own wants and yet secure enough volume. But with the prevailing competition not alone of other photo-offset plants but of printers and various types of reproduction services, salesmen must empty themselves of their own needs and devote themselves to satisfying, adequately, the wants of those from whom they hope to secure orders.

Look beyond your own wants and try to see clearly the wants of your prospect. Take a long view of a prospect's immediate need—it may be "only the beginning," says Mr. Wolfson.

In so doing, a thorough knowledge of photo-offset lithography is essential. The proper application of such knowledge counts as much. There is no need to freely throw such knowledge around. It is enough to impart only such information as is needed to cover any particular want encountered. Remember that an immediate want must be satisfied. After the sale is closed, and in order to build for the future, the salesman might disclose additional knowledge to impress his customer that he "knows his stuff," and should be called upon for further assistance.

Let us analyze wants a bit more. There is a difference between a want and a need. A prospect may need photo-offset lithography but may not want to buy from you, and for any number of reasons. He may not want to spend the money, he may want to give the business to another salesman, etc.

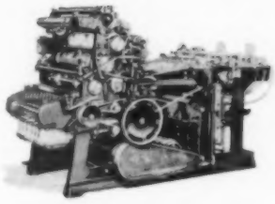
Please note there are obstacles to overcome. The salesman must learn to detect these. An obstacle known is the more readily surmounted. There may exist a need, known or unknown to the prospect. It is up to the salesman to arouse a want to satisfy such needs. There are, too, the obstacles. A prospect needs and wants a catalogue. Economic conditions may be such that he believes it to be a waste of money. And so it goes—endlessly.

There is a difference between an obstacle and an objection. This is what Edward K. Strong, Jr., Professor of Psychology, has to say about this: "Objections are excuses, alibis, rationalizations, trumped-up explanations why one will not buy. Or they are reasons why the salesman's product is not as desirable as somebody else's. Seldom does a prospect worry about an object. They are concocted to worry the salesman and get rid of him. . . . . An obstacle, on the other hand, does worry the prospect, if he is aware of it; for it is because of the obstacle that he is dissatisfied. . . . . The seller, on the other hand, is prone to confuse the two whenever he is viewing the selling from his own point of view. The reason he confuses them is because the objections the buyer raises are obstacles for the seller, but they are seldom the obstacle of the buyer."

I recommend that you buy and carefully read Professor Strong's book "Psychological Aspects of Business." The publisher is McGraw-Hill Book Company, Inc., New York. This volume deals with sales, advertising, propaganda, employor-employee relationships.

Last month I wrote: "Assemble sets of possible situations in which the salesman who represents your house might find himself. Determine (through these, I meant) whether he is self-sufficient to come through creditably."

I am indebted to an alert, intelligent paper salesman who called my attention to a correspondence study course based upon this very idea. Some outfit in Chicago issues each week a situation wherein a salesman



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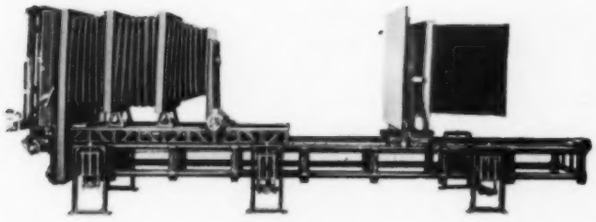

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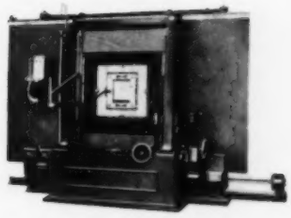

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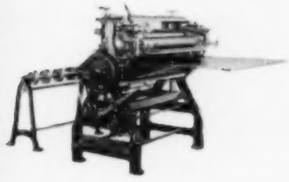

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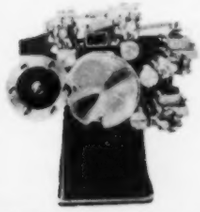

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is apt to find himself. The salesmen taking this course must write out their method of handling themselves. These answers are graded. The best answers win prizes and honorable mention.

However, the very fact that salesmen in various lines of businesses are enrolled makes these problems too general. Actually, they are based upon objections—such as, "I am not interested," "My present suppliers serve me well, why should I change," "Your price is higher than that of competitors," etc.

Therefore, while the course is good as far as it goes and awakens thought on the part of salesmen enrolled, it does not go far enough. Situations concerned with the wants, needs and obstacles are required to help salesmen, not mere objections which are meaningless.

I append several situations which should be put before salesmen for solution. These are splendid, too, to apply when salesmen are considered for a job with the house. Similar situations should be written up by the sales manager and the heads of photo-offset houses, to be used in the training of salesmen.

Situation No. 1. You are requested to quote on a reprint of a 32-page booklet, self cover, page size 8½ x 11". The booklet has line drawings, is technical in nature, gives tabulated data, etc. The company manufactures controls which can be used in any type of manufacturing plant. How would you handle this? A new prospect, not a customer, is the inquirer.

Frankly, I should like to see the written answers of photo-offset plant heads and their sales managers as well as from their salesmen. I am sure these would be very amusing.

Undoubtedly, some would write about as follows:

"I would inform the prospect that photo-offset lithography is ideal and most economical of all methods of reproduction for such a job. The cost of new type composition on tabulated material would be costly, must be carefully proofread in order to avoid errors. Inasmuch as we photograph the pages, no mistakes could creep in, no new typesetting is required.

"Furthermore, no extra camera shots for screening are necessary. Besides, the page size is just right for our presses, and there is no waste in paper stock of any account.

"I would next show the prospect specimens of reprint booklets we produced for others, thus proving we are capable of giving him a job satisfactory in all respects.

"When I brought the estimate over, I would again stress our facilities and give assurance of prompt, satisfying service at a reasonable price."

Salesmen capable of figuring such a job at the prospect's desk might, in addition, make capital of this ability by saying:

"There is no need of my taking back specifications to the office to secure a quotation. I can give you a figure in five minutes. I am sure it will be moderate, indeed, and I can take the job back with me, thus saving time—and you are sure of getting your finished copies back in four days."

What has been given above appears detailed, thorough. The answer shows the salesman knows enough about his own proposition. Such an answer, undoubtedly, would be submitted by the average salesman.

I give you the correct thought processes in the situation given:

A new prospect invites a quotation. Evidently, then, other photo-offset houses also have been invited to figure. The job is more economical to produce by photo-offset than by printing, hence printers are eliminated, despite the fact that some of these are also asked to quote.

The picture as given reveals one outstanding angle. There are thousands and thousands of plants, yet the prospect wants but 500 copies reprinted. Why?

Does he require these limited number of copies to tide him over until he issues a new, revised booklet? If so, there is some good future business here.

Perhaps this booklet of diagrams, illustrations, charts, and tabulated matter pertains to earlier controls manufactured, and must be on hand to send to those users who ask for it, therefore, only a limited quantity is required.

A substantial saving should interest this inquirer. If he can use more copies, and realizes how little he has to pay for an additional 500 copies, he might order the extra quantity, provided that he can use them. Therefore, I will quote on 500 and 1000 copies.

But, apparently, 500 copies are all that the inquirer needs and wants, and certainly he wants to get them at the lowest price possible. Other photo-offset houses are apt to quote on 500 and 1000 copies, too, and it is a toss-up who gets the order. Therefore, I must ward off this competition—and a lower price will do it, provided I can do so without cutting.

Now, 8½ x 11" page size makes rather a bulky booklet of reference. Suppose I reduce the page size, so cut down the paper stock and the number of impressions. The price will be lower then. But how about legibility? I will photograph a representative page, and show the *film* negative to the inquirer.

This is done. The film negative appears legible. I take it to the inquirer. Give him prices in lots of 500 and 1000 copies same size, and in the reduced size. I emphasize the fact that we will use film, not paper negatives. And I get the order for 500 copies, reduced size. A few questions, and I find that this quantity is sufficient for years; and that the booklet covers old, earlier makes of controls. I have saved the inquirer money. He is pleased at the way I have handled not his inquiry but his need and want. The chances are I will be called in on other work.

Situation No. 1 is based upon an actual experience. You now have the idea, and should be able to prepare your own situations. They are invaluable in the training of salesmen. Indeed, I believe it would be a good idea to run at least one of such situations in The Photo-Lithographer monthly, as a feature of the publication. Should this appeal to you, write me in care of The Photo-Lithographer.

Meanwhile, we must go on. The next installment will take up the matter of salesmen control.

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KODACHROME IN PHOTO-LITHOGRAPHY

The Litho Club, Philadelphia, considers its February meeting one of the most interesting ever held, largely because of the following address delivered by John McMaster, of the Graphic Arts Department, Eastman Kodak Company

INTRODUCTION

THOSE of you who are actively engaged in reproduction work have undoubtedly noticed the large amount of photographic copy that has been supplied in recent years. This is due not only to the improvement in sensitized materials which permits the recording graphically of practically all phases of human endeavors, but also to the high quality of the results. Such copy represents as close to facsimile reproduction as it is possible to obtain. Keeping pace with the trend toward the use of photographic copy is the increased use of natural color prints and transparencies.

REVIEW OF PRESENT METHODS

Most of you are likewise familiar with the present means for providing photographic colored copy. Color prints on paper are produced from separation negatives exposed in an ordinary view camera or in a one-shot camera, as the case may be. The prints may be made by means of the Eastman Wash-Off Relief process, Tri-Color Corbro, or some of the other methods on the market. Color transparencies on glass or film in which is incorporated a screen pattern of geometrical or heterogeneous color elements have been in use for several years.

The making of color separation negatives and their use in producing color prints on paper represent somewhat complicated and expensive operations. This is especially true if a scene consists of moving objects and a one-shot camera is employed. While the results obtained represent most faithful portrayals and are entirely satisfactory for reproduction purposes, photo-lithographers have always felt that the supply of suitable photographic copy in color was restricted until more simple means of producing it could be found.

The screen color transparencies to which reference has been made have presented problems to the photographer, not only with regard to the taking of the original scene, but also with respect to its reproduction by photomechanical or other means. By necessity, exposure must be made through the tiny filter elements which cut down the amount of light required to act on the photographic emulsion. This is turn calls for extended exposures considerably greater than those given to present day fast panchromatic materials or, on the other hand, the use of a great amount of illumination.

Furthermore the ever present screen pattern loomed up in the transparency whenever it was used for the making of color separation negatives. The silver grain of the emulsion together with the filter elements attached to the plate or film discouraged more than one photo-lithographer from attempting the production of process plates from this type of copy. The Eastman Kodak Company found that its 16 mm. motion picture Kodacolor film of 1929, also a screen color transparency showing vertical lines when projected, could be no more than a stop-gap on the road to the making of successful color photographs.

KODACHROME FILM

This company soon realized that a suitable color method must permit the making of exposures as in black and white photography, that the processing must be accomplished by simple means or in laboratories set up for the purpose, and that the finished result must represent not only faithful color rendition, but it must be free from grain or screen pattern of any kind. These conditions were fulfilled in our Kodachrome film introduced in 1935 for use in 16 mm. motion picture cameras. Most of you are already familiar with this type of material and have undoubtedly used some of it.

As you know, Kodachrome is exposed in the camera in a manner similar to that used in black and white photography. The emulsion speed for both daylight and tungsten illumination is on the order of that for a fast panchromatic film or plate. The film is processed in the laboratories of the Eastman Kodak Company and is returned to the purchaser with the colors incorporated in the gelatin of the emulsion layer. All the silver originally present in the emulsion is removed and there remain virtually only film base, gelatin and dye.

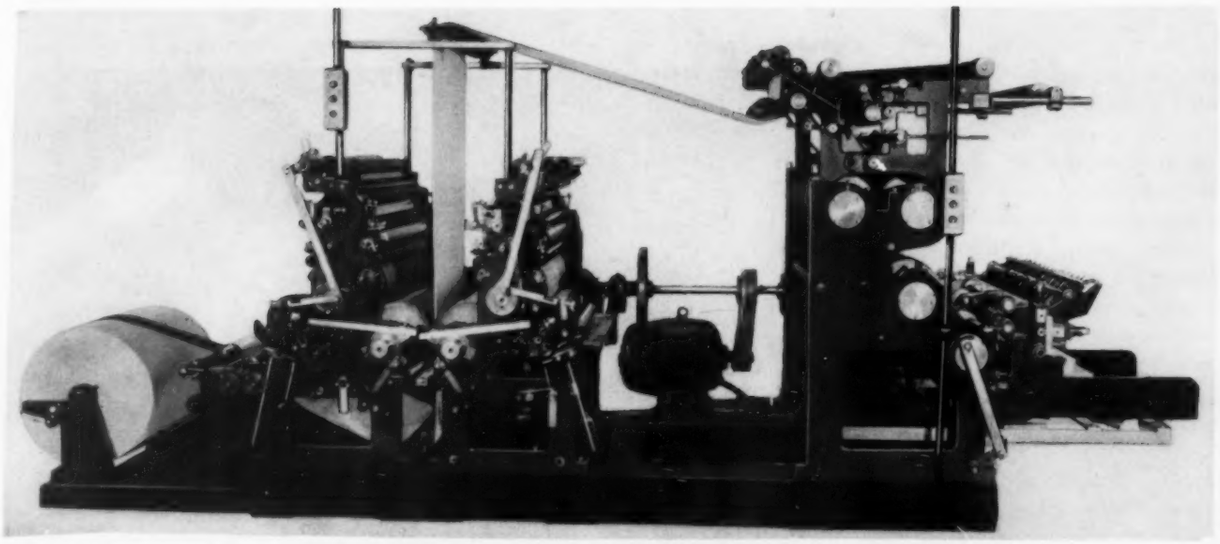
The absence of grain and the fact that the dyes are present in the extremely thin gelatin coating allow the Kodachrome to be projected to large dimensions. This type of Kodachrome film was of interest chiefly to the amateur cinematographer, the medical student and a few others.

In the summer of 1936, however, Kodachrome was produced in the so-called 35 mm. size for use in still cameras such as the Kodak Retina, Kodak Bantam Special, Leitz Leica and Zeiss Contax. Eight to eighteen exposures in size 1 x 1½ inches could be made on a single roll of film depending on the capacity of the camera. After processing the frames could be cut out, bound between glass and projected for lecture or illustrative purposes, in the home or before groups of people.

KODACHROME AS COPY

Many of us in the Eastman Kodak Company recognized Kodachrome film in the miniature size as a suitable source of copy for photo-lithography due to its excellent physical qualities. We felt, however, that commercial photographers would prefer not to use it because of the necessity for processing by our company, that photo-mechanical workers would shun the small size and would insist on waiting for cut sheet material in larger sizes.

We did not reckon, however, with the more enterprising workers who would not allow trivial objections to interfere with the use of Kodachrome film in making process plates, for in



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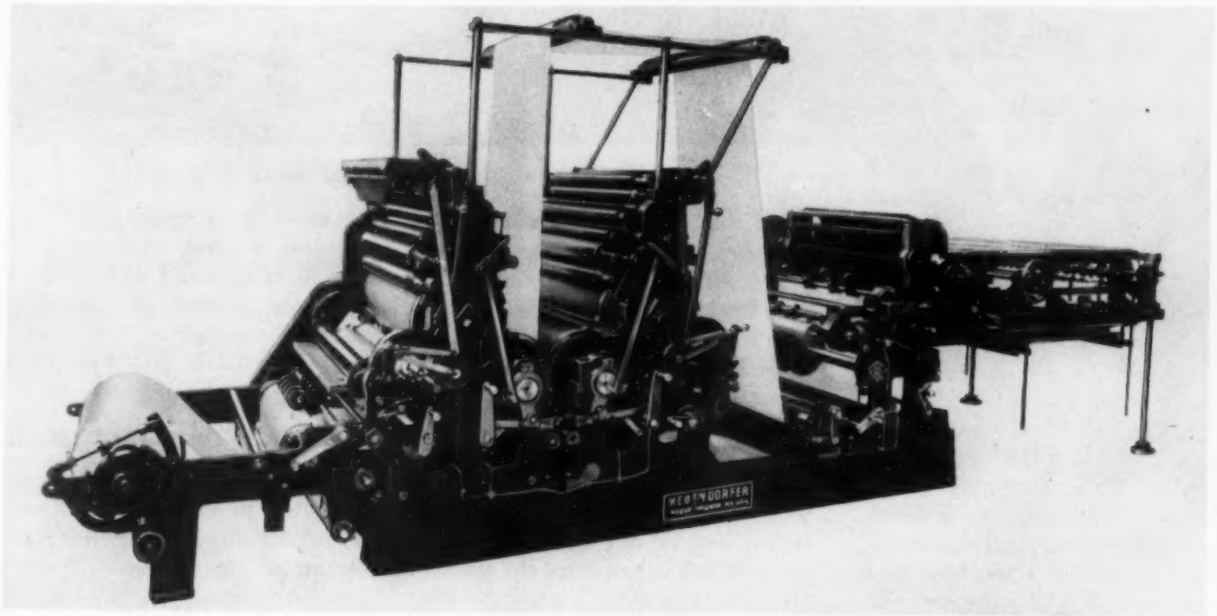

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less than a year over a dozen magazines with national circulation have used it for covers, for illustrating feature articles, and for advertising.

Enlargements up to 14 x 21 inches have been made from this miniature film without loss of definition or the semblance of grain. Kodachromes have been made in daylight of fast moving objects, in artificial light, of indoor sporting events such as hockey matches by Photoflash illumination. Portraits, spot news shots, still life set-ups, medical pictures, photo-micrographs—in fact the whole gamut of human endeavors which can be recorded by photographic emulsions has been captured on miniature Kodachrome film. And in turn such Kodachromes have been reproduced by photo-mechanical means, all within the space of twelve months.

One of the first examples of this type of work will be found in the reproductions made by the Zeese-Wilkinson Company of Long Island City. About the same time gravure supplements of some of our metropolitan papers appeared with Kodachrome reproductions.

A most remarkable application occurred in the New York Daily Mirror for May 23, 1937, which showed pictures in color of the Hindenburg disaster. Other newspapers such as the Boston Herald, the Milwaukee Journal and St. Louis Post Dispatch had taken to the use of Kodachrome in their gravure sections.

Other applications were made during the early months of 1937. Covers of the following magazines were produced from Kodachrome: The Saturday Evening Post, American Magazine, Scribner's, Popular Photography, Coronet. These same publications together with Good Housekeeping, Life, Time, Esquire, Fortune, Printers' Ink, Advertising and Selling, The Inland Printer, and Advertising Agency to mention a few, have made liberal use of Kodachrome. The advent of Kodachrome appears therefore to have opened up a whole new field of opportunities for the photo-mechanical worker.

Commercial photographers have been quick to recognize the potentialities of this new medium. In it they find a new tool with which they can record the original scene and at the same time they have the assurance that their transparencies can be used by the photo-lithographer. In most localities an adequate supply of Kodachrome copy is now being produced.

Figure 1

It is well known that the Eastman Kodak Company intended to produce Kodachrome in cut sheets in sizes up to 5 x 7 inches and even larger. We cannot say at this time when this material will be ready for the market but experimental work is going ahead as fast as is consistent with high quality.

Most of you are probably not so much interested in the history of this remarkable development as in the technique involved in making such reproductions. Many and varied are the methods and it is impossible to say which is the best, individual conditions in each shop being the determining factor. I should like to suggest a number of possibilities and later to describe somewhat in detail and with illustrations a practical and successful method.

SELECTION OF KODACHROME TRANSPARENCIES

Needless to say, all Kodachromes are not equally suitable for photo-mechanical reproduction. While it is possible for us to apply the most scientific methods of processing in our laboratories, we have no control over conditions of exposure, lighting, composition, color selection and so forth. These are the prerogatives of the individual photographer.

The Kodachromes should be of good photographic quality and judged by

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the same criterion as black and white transparencies. In other words, they should have a full range of tones from highlight to shadow, with detail in the deeper densities and well modeled highlights. Excessive contrasts due to harsh lighting are to be avoided.

THE LENS

It is assumed naturally that all Kodachrome transparencies are to be enlarged. This brings into consideration the most important factor, that concerning the lens; it must be of short focal length. The apochromatic lens of shortest focal length with which we are familiar is 8½ inches and for all types of Kodachrome reproduction this could hardly be considered adequate. Fortunately there are on the market many anastigmat lenses of shorter focal length which are suitable. They are normally equipped with iris diaphragms or stops.

In order to make certain that any particular lens is sufficiently color corrected for this type of work, a guarantee should be obtained from the manufacturer or, better still, it should be put to the test on an actual job in the shop. A lens of 5½ inches focal length will enlarge eight times, with a camera extension of 50 inches, while a lens of 10 inches will magnify four times with a camera extension of 50 inches. The following formula will be found helpful in determining the selection of focal length:

$$\frac{\text{Size of Image on Ground Glass}}{\text{Size of Kodachrome}} = \frac{\text{Camera Extension} - \text{Focal Length}}{\text{Focal Length}}$$

FILTERS AND SCALE OF GRAYS

The making of color separation negatives from flat copy such as natural color prints, wash drawings, oil paintings, etc., calls for the use of standard tri-color filters, the Wratten A, B, and C5 set. With Kodachrome, however, a slightly different set appears to work more satisfactorily, a set with narrower transmission bands such as the F-29 for the "blue" printer, the N-61 for the "red" printer and the C4-49 for the yellow. A combination of No. 34 and 47 may also be used for the yellow. Some Kodachromes lend themselves to the use of the 88A filter with the Infra-Red plate for the black printer although the results are not always 100% correct. As an alternative the K2 filter with a Panchromatic plate is suggested.

A film scale of grays known as a Special Film Density Strip for Kodachrome may be placed alongside the color transparency. Because of the great density range found in the ordinary Kodachrome, it is advisable to cut the density strip in two and overlap the two halves to double the steps. This scale of course must be reproduced on the separation negatives and positives in equal density and contrast to insure proper balance.

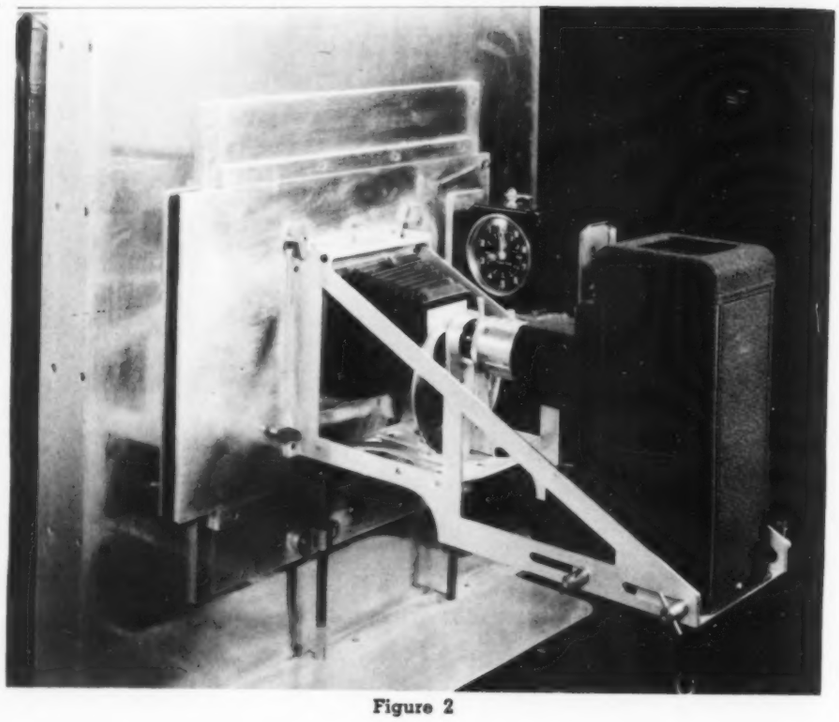

Figure 2

APPARATUS FOR MAKING SEPARATION NEGATIVES

Presumably the separation negatives from Kodachrome will be made in continuous tone rather than half-tone. The positives suitable for deep etch offset may then be made in half-tone.

In making direct enlargements up to ten diameters, recourse may be made to apparatus employed by the miniature camera enthusiast; that is, that Kodak Miniature Enlarger (See Fig. 1). This is a vertical type of projector equipped with a lens of good color correction. However, most workers prefer the use of their regular process cameras. The Kodachrome is set up in a transparency holder, illuminated from the rear and stray light shut out with suitable hoods. As indicated previously the focal length of the lens and the amount of camera extension will determine the degree of enlargement.

Another piece of apparatus which has been in use successfully is an adaptation of the Eastman Kodaslide Projector, an instrument intended originally for projecting 35 mm. Kodachrome slides on screens for viewing (See Fig. 2 and 3). The regular lens has been removed and replaced with one of four inch focal length. This is inserted into the process camera and the image is thrown directly on to the panchromatic plate. The lamp is reduced in wattage from 250 to 100 and filtered with a piece of opal glass in order to allow for exposures of normal times.

The holder for the Kodachrome is fitted with two compartments, one for the transparency and the other for the opal glass flashing sheet, for use in making direct half-tone negatives. The holder is merely slid

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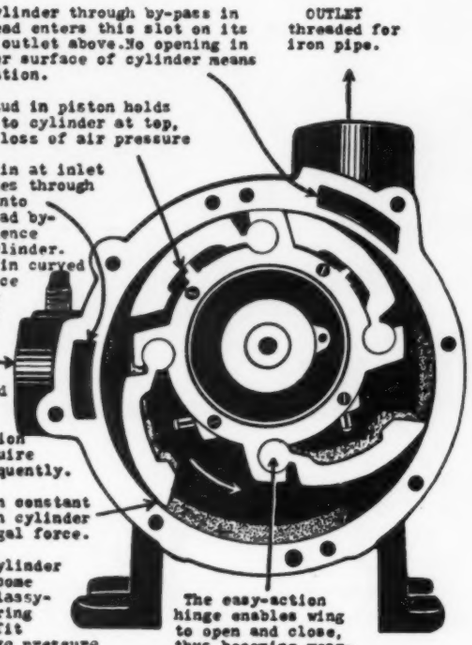
Air from cylinder through by-pass in cylinder head enters this slot on its way to the outlet above. No opening in curved inner surface of cylinder means quiet operation.
OUTLET threaded for iron pipe.
Enclosed stud in piston holds wing close to cylinder at top, preventing loss of air pressure or vacuum.
Air coming in at inlet at side comes through this slot into cylinder head by-pass and thence into the cylinder. No opening in curved inner surface of cylinder means quiet operation.
INLET threaded for standard iron pipe.
No composition tips to require renewal frequently.
Wing kept in constant contact with cylinder by centrifugal force.
Wing and cylinder surface become hard and glassy-like, insuring a perfect fit and positive pressure or vacuum.
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from one position to the other to allow for the detail and flash exposure without moving from the focal plane.

An iris diaphragm furnishes the stop changes and suitable provision is made for holding gelatin film filters. The lens is attached to the front board of the process camera by a bellows arrangement. Such an apparatus permits the making of both continuous tone and half-tone negatives.

THE NEGATIVES AND POSITIVES

The continuous tone color separation negatives are made on a panchromatic plate such as the new Wratten Tricolor Panchromatic Antihalation Plate. The published filter factors will serve as guides in making the exposures. It should be borne in mind that the plate exposed through the blue filter, that is, the yellow printer, should be developed 25 to 50% more than the others in order to have the contrast match. When the gray scales are equal in density and contrast in all negatives, they are said to balance. Half-tone positives may then be made from such negatives with the Eastman Contrast Process Plate or the Kodalith Ortho Plate. Both of these are suitable for dot etching.

For direct half-tone color separations, the Wratten Contrast Thin Coated Panchromatic Plate (Wratten C.T.C. Pan. Plate) is recommended. This likewise may be dot etched. Contact positives can then be produced on the Eastman Contrast Process or the Kodalith Plate.

No mention has been made of masking methods to accomplish color correction although such practices are entirely feasible. There are possibilities of simplifying these procedures greatly when larger sizes of Kodachrome are made available.

In making color corrections, the original Kodachrome becomes the guide from which the dot-etcher will work. In many cases he will be able to use the transparency simply by setting it up before an illuminator. Where detail is fine, however, some sort of enlarging apparatus such as the Eastman Kodaslide Projector should be employed. The lamp should not be left on for more than five minutes at a time in order to prevent overheating of the slide. However, this should work no great hardship on the color etcher.

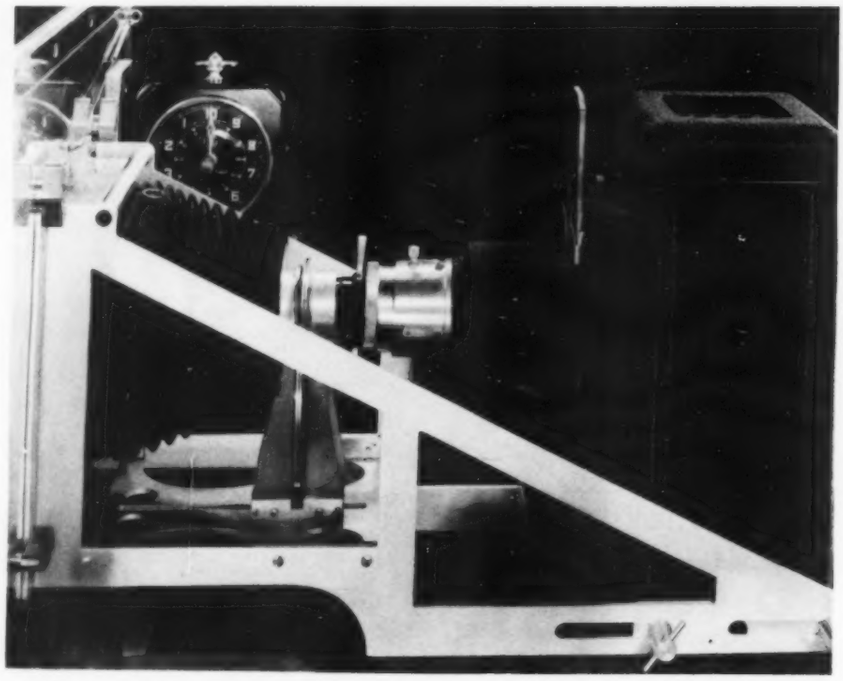

Figure 3

CONCLUSION

As indicated previously these developments have taken place within the space of a year. It is possible that during the next twelve months more may be learned about the making of reproductions from Kodachrome. This will be especially true if Kodachrome in larger sizes is made available. In general, however, the problems will be the same except for the fact that it will be somewhat simpler to work from a large original than from a small one.

There will be less difficulty presented in the nature of loss of definition and photographic detail, loss of color saturation, etc. It goes without saying that any shop with experience in miniature Kodachrome reproductions will be much better equipped to handle the larger material when it is on the market.

Well-Known Editor Will Address L. N. A.

William R. Kuhns, editor of Banking, Journal of the American Banker's Association, will be a feature speaker at the 33rd annual convention of the Lithographers National Association, to be held in Hot Springs, Virginia, on May 10, 11, and 12.

Mr. Kuhns is well-known for his grasp of national business conditions as reflected through banking circles, and for his ability to present the news of these conditions and conclusions in lucid and illuminating terms. It is anticipated that his talk will be one of the high-spots of the Convention, not only with reference to those members of the L. N. A. who specialize in bank stationery and advertising material, but also for all who attend.

Social Security Benefits

The Federal Social Security Board urges employers to notify employes who have reached the age of 65 since the Social Security Act became effective January 1, 1937, that they should claim the benefits due them under the Act. These benefits will amount to 3½% of the total wages they have earned since January 1, 1937.

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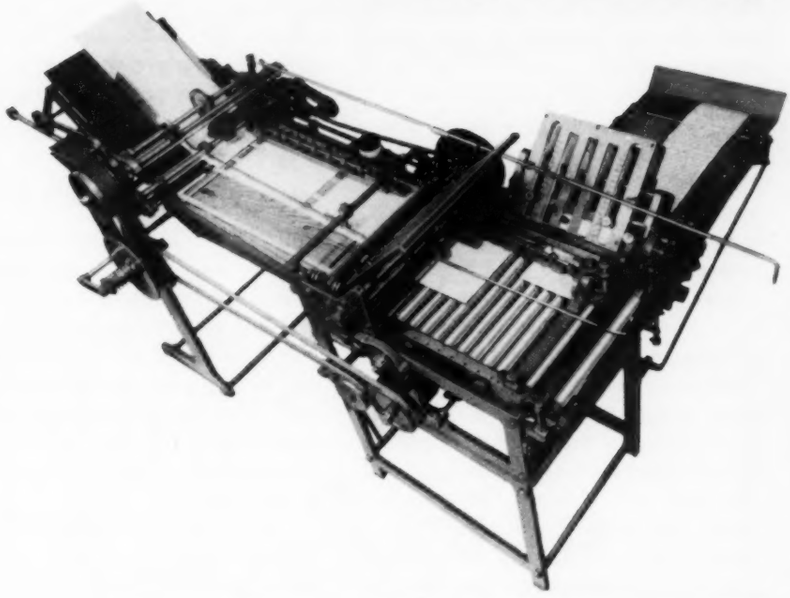

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THE FUTURE OF THE WEB OFFSET PRESS

By A. S. BUSK, President

New Era Manufacturing Company

THE web offset press of the near future should occupy a very important place in the up-to-date lithographic plant, according to A. S. Busk of the New Era Manufacturing Company, Paterson, N. J., who delivered a talk on "The Opportunity for Web Offset Presses" before the Litho Club, New York, at their February meeting.

The following excerpts from Mr. Busk's talk give a good insight into current trends in the development of web offset presses, prefaced by some historical facts.

"To my knowledge a music publisher in Long Island City was one of the first to use web offset presses and then one or two of the dress pattern printers used web offset presses to produce dress pattern sheets.

"Approximately fifteen years ago a German press in the plant of the Methodist Book Company, Cincinnati, Ohio, was used to produce various weekly Sunday School papers and evidently it was very satisfactory for that class of work. Shortly after that the Harris Company built a wide web offset press for the Wallace Company, Chicago, to produce the special fanfold work that company produces.

"About eleven years ago when I was with the Hoe Corporation we designed and built for the Autographic Register Company, Hoboken, N. J., a special web offset press to produce continuous form systems. I believe that outside of the press that the Wallace Company had and some wide web presses in the plant of the Gillman Fanfold Company, the Autographic Register Company was the first company to produce continuous business systems forms lithographically.

(Here Mr. Busk described in detail the improvements that have been made in plate clamp arrangements by the engineers of various press manufacturers.)

Web Presses Can Be Versatile

". . . This press, one of seven sold to one concern in Ohio, for producing continuous forms, checks, etc., has three offset printing units. They can print three colors on one side or one color on the back of the web. Then, by carrying the web over angle bars and then through the other two units, they print two colors on the face.

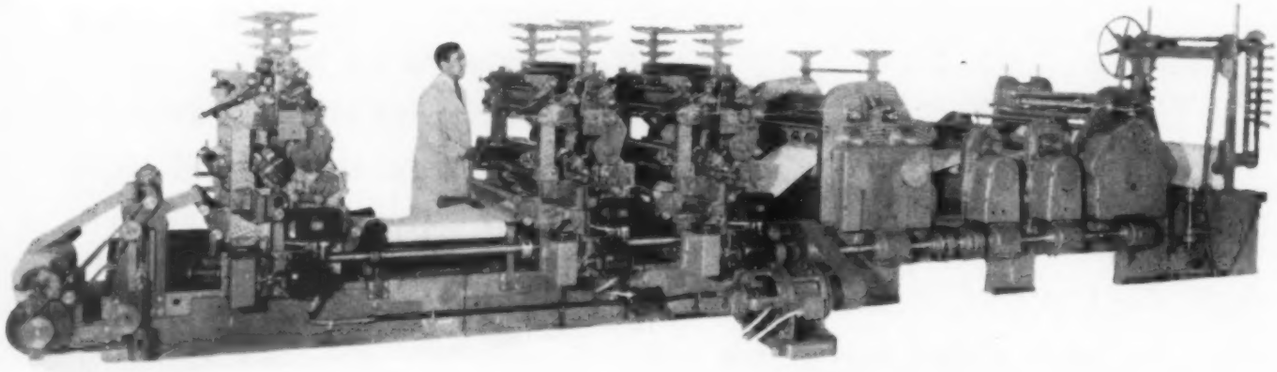
"When the web leaves the offset units it passes through a unit that can imprint on the forms with linotype slugs and curved electro plates and also number the forms. There are two units for punching holes in the form, and from there the web passes through a unit for perforating both lengthwise and crosswise of the web, and then it goes into a slitting and rewinding unit. . . . The printed web can be delivered to suit the purchaser's requirements—cut sheets, and folded, or folded into continuous zig-zag folds.

". . . There are many ways of assembling offset printing units into a web press. Some are built without impression cylinders and the web is printed simultaneously front and back between two blanket cylinders. For real accuracy and quality printing it is desirable to have impression cylinders.

". . . One of the most important units on a web offset press (Mr. Busk at this point referred in particular to a press made by his company that has an overall length of approximately 28 feet) to assist in obtaining perfect registration throughout the various units is the one operating the method used for applying tension on the web at the stock unwind end of the press. For perfect work the web must be kept under the same tension throughout its entire run.

Speed May Reach 600 Ft. a Minute

"The highest speed that we have operated a web offset press has been



This is the New Era 3-color web offset press that prints one color on back and two colors on face of web, and also imprints, numbers, punches, and perforates.

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For quickly and easily making Blue Prints on glass. Makes a distinct print which can be used as a key for the most exacting stripping work.

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10,000 cylinder revolutions per hour for a 32" circumference cylinder. This would mean a web speed of approximately 450 feet per minute.

"None of the web press manufacturers has had sufficient experience to date to be able to predict what speed we may obtain in web offset presses in the near future. On our next web offset press we are going to try to determine whether or not it is possible to bring the web speed up to approximately 600 feet per minute or even higher, if possible.

Small Web Widths Most Practical

"Unless the work that is to be produced on web offset presses requires a wide web, I believe it is more economical to build the presses with a web width of not more than 30" wide. . . With a web width of 26" the operator can readily reach the entire length of his plate and his blanket when standing on the floor at the side of the machine. He can adjust his fountain also when standing on the floor.

"In a wide web machine it becomes necessary to make passageways between the printing units to enable the operator to reach the entire surface of the plate and blanket and in some cases the operator also has to climb up and down because of units built one on top of the other, and all such movements tend to fatigue the operator.

"We are now building a press that will have three printing units. There will be a numbering unit so that numbers can be printed to read either lengthwise or crosswise of the web; there will be a perforating unit to perforate in both directions; and instead of a rewind we will have a unit for cutting the web into sheets and delivering the cut sheets on to a lowering pile board.

"We expect to deliver accurately cut sheets at a speed of 10,000 sheets per hour. We also expect to have the sheets cut accurately in relation to the printed form so that the sheets can be fed, afterwards if necessary, through a sheet printing machine for other work and they will register. On a press that delivers the printed web cut into sheets, the speed of the press has been governed by the sheet delivery. In the last few years there has been considerable development work by press manufacturers to improve high speed sheet delivery.

Economical Operation

"A web offset press as described will not need more than one press operator and two helpers. In fact, after they become acquainted with the machine they will be able to operate it with one operator and one helper. A web press with two shifts, a total of 80 hours, will produce 75% more work with approximately 50% less labor than the four machines previously described. You can readily see there will be quite a saving in labor besides ability to turn out considerable more work in a given time.

"To date, and for some time to come, web offset presses will be practically custom built to suit the buyer's individual needs. Of course, the buyer must be sure that he will have sufficient work to place on the press and the work must be of correct size so that it can be placed on the circumference of his plate cylinders with the least possible waste of paper between impressions.

"One of the handicaps of an all-size press is that it cannot be operated at as high a speed as a web press of fixed size, which is due to the web control that takes place once to every cylinder revolution. Where a concern has sufficient work to keep a number of presses busy, the fixed size web offset press is more desirable because, as stated, it operates at a greater speed and the combination of a number of presses will turn out considerably more work.

Long Runs Not Necessary for Economical Operation

"The general opinion I have found among printers is that it is necessary to have long run jobs for web offset printing. Naturally, long run jobs are desirable for any kind of a press, but I see no reason why short runs or moderate size runs cannot be run as economically on a web offset press because there is no more work in preparing each printing unit on a web press for the job than on other types of presses. . . .

"It is my understanding that there is now being built a multicolor web offset press that will produce a colored section of a newspaper, for advertising purposes. This should be a wonderful thing for the advertisers —to have their articles shown in their true colors. . . .

"Before another six years have rolled by we will, no doubt, see web offset presses used for work for which in the past years they have been considered impractical."

The following questions, asked by members of the Litho Club of New York, were answered by Mr. Busk, following his address at the February meeting:

1. Suppose at the speed mentioned, 10,000 sheets per hour, some trouble such as duping up occurred; this would cause much waste, would it not?

Ans: The operator can, by a clutch, disengage the web of paper from traveling and still rotate the printing units.

2. In this latest type press, do you believe the cut sheets will register if put in later to print in another sheet fed press?

Ans: Yes, the sheets will be cut in perfect registration so that they may be fed through other presses for further printing.

3. If a six color job were to be printed and the web press was only equipped to print four colors, could that web be rewound into a roll at the delivery and then fed through the press for printing the other two colors and have the two colors register with the first four colors printed?

Ans: If a web press is equipped with units to print four colors only, and six colors are wanted the web cannot be fed through the second time and have the two colors register with the first four colors printed, because there is some change that takes place in the paper as it passes through the press the first time that cannot be overcome sufficiently to print two additional colors and still keep the paper in a web formation. With a four color press and six colors needed, the web press would have to cut the web into sheets after printing four colors and the sheets would be cut to perfect register so that they could be fed through a two-color sheet fed press for the additional colors, to perfect register.

4. What is the largest press of this type made, and will a large press register as well as a small press?

Ans: Presses have been made to a 44" cylinder circumference and 54" wide web, and a large press will register equally as well as a small press.

5. Do all the cylinders on a web offset have to be the same diameter or can different length forms be printed at the same time?

Ans: The cylinders must be same diameter in a web offset press and different length forms cannot be printed at the same time. In other words, when a web press is equipped with a cut off and sheet delivery the length of sheet cut off is always equal to the circumference of the printing cylinder. We have, as I explained at the beginning of my address, built a web

(*Continued on page 90*)

Consider Equipment with Distinctive Advantages

Wesel Plate-Coating Machine

(Right)

• This machine has an automatic *air-circulating* device that attracts no dust from outside. *A distinctive advantage.* Requires no extra motor for that purpose. Keeps the warm air *uniform and in constant motion,*—a factor insuring speed, consistency and cleanliness.

Driven by direct-connected, geared-head motor for positive and constant speeds, controlled by variable speed regulator.

In addition to the copper washing spray with automatic cut-off, this machine is fitted with a perforated copper spray pipe for cleansing the housing.

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Vacuum contact may be had in two to three seconds. And there are no hooks, clamps or fastenings. The new "quartz crystal" glass *permits 25% faster exposure.* Motor and pump are built into one integral unit, the metal base of which is supported on a series of compression springs, eliminating all noise and vibration.

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THE SELLING PARADE

(REGISTERED)

BY CHARLES B. ROTH

HE was called in as a witness in a civil suit: something to do about a bankruptcy. He had sold the defendant an item which was under question by the court, and the opposing counsel was getting him all confused. After all, he was a salesman, not a lawyer.

"Your honor," said he to the judge, "if you will let me tell you just what I told the customer, this lawyer won't have to ask me so many questions."

"Very well."

Whereupon the salesman got out his sample, and treated the judge just as he would treat a prospect. He gave his sales talk. He demonstrated. He used as much persuasion as he did on his other prospects.

When he had finished, the judge declared: "I'll just buy one of those myself."

After the order was signed, the trial went on.

That's salesmanship!

THE man who has as many of the qualities of big time salesmanship as any other salesman I have known—Alan S. Richardson is his name—admitted to me the other day that he'd be entirely lost without his talisman. He doesn't carry a rabbit's foot or a horse chestnut, a four-leaf clover or a good luck charm. But he carries what amounts to the same thing.

It is a card in his wallet.

Shamefacedly, and only because I insisted upon it, he showed me the card. Dog-eared and I'm bound to say a little dingy from ten years' daily use, it has nevertheless inspired millions of dollars in sales.

"Whenever I get into a slump," explained Richardson, "I drag out this little card. It gives me a new start. It really makes me feel like a new man. You see, it gives me a chuckle and a bump. The chuckle cheers me up—the bump makes me get out and work. Which does the most good I don't know. The combination is unbeatable."

And now you, of course, want to know what the magic is. Well, I'll tell you. The card is three by five inches in size. It is printed on one side only. In the upper half is a picture of a tom cat walking a fence. Under it are these words: "You gotta make calls." The lower half shows the same cat followed by five kittens. The copy continues: "If you want results."

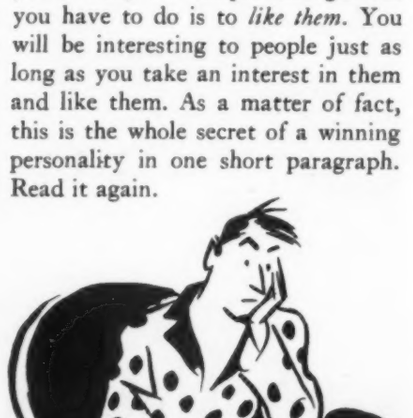
THERE'S a trick even to making appointments. A brilliant New York salesman, selling to big, busy men, finds that the best way is to ask for an appointment at an odd hour.

He reasons: "Most salesmen ask for appointments on the even and the half hours. To be a little different I ask for them at odd times—10:10, 11:20, 1:40.

"These men can say that they are tied up at 10:30, but not one in a dozen has an appointment at 10:50—and he knows you know it.

"Furthermore, if you make appointments in this way, he'll respect you as a respecter of his time. He'll get the idea that maybe you are as busy as he is, and won't unduly consume the time of either of you."

PROBABLY you'd be glad to know how you can make *all* your customers like you, wouldn't you? Well, it's simple enough. All you have to do is to *like them*. You will be interesting to people just as long as you take an interest in them and like them. As a matter of fact, this is the whole secret of a winning personality in one short paragraph. Read it again.



Charles B. Roth, author of *The Selling Parade*, which will be a regular feature of The Photo-Lithographer, is a nationally known trainer of successful salesmen. He has trained 10,183 sales people during the past seven years and there is scarcely a line of business that does not have salesmen who have taken his training.

Probably one reason for Mr. Roth's success in training salesmen is that behind his vivid presentation of sound fundamentals is a solid background of actual selling experience.

He taught salesmanship at a number of schools of high standing, and began organizing his own sales institutes, sometimes reaching as many as a thousand sales people a week. He conducted special sales courses for nationally known firms and for five years was an account executive for McCann-Erickson, Inc., advertising agency, working on the sales and advertising problems of some of the leading firms in the United States.

In his sales training work, Mr. Roth has developed a unique form of presentation which he calls "situational selling." He never propounds theories alone, but illustrates them with specific examples.

In addition to being a sales trainer of national reputation, Mr. Roth is a writer of considerable note. More than a hundred national publications have published his work. He writes in a terse, brilliant style which is exceptional in its human interest and vitality.

Every reader of The Photo-Lithographer who is at all interested in selling should find inspiration every month in *The Selling Parade*.

Photo-Offset Camera Operations

HALF-TONE NEGATIVES

By THEODORE S. HILLER

A THEORY is only accepted as true when it "proves itself" during practical application in several different circumstances. The great length to which many experimenters have gone to evaluate and edit the effects of various screens distances, stop shapes and stop sizes on the negative has too often fallen by the wayside because the technical nature of the subject was too complicated for the average non-scholarly camera operator; also, because the details of the research were too impractical to be applied to routine shop procedure. With this view in mind, I will attempt to sketch several practical methods whereby half-tone negatives can be produced.

The Basis of Each Method

The choice of any one method or procedure for producing half-tone negatives is not based primarily upon rules laid down by the theorist, but is the result of years of practical experience with numerous types of sensitive media, various types and rulings of screens, different lenses and lens apertures, operating with several types of illuminants. Although there have been numerous variations in the methods of producing half-tones as the principles of procedure were handed from one operator to the next, the major portion of the knowledge which any good operator possesses is the fruit of diligent application of a few basic rules. Upon this foundation each successful operator has increased his ability to produce suitable negatives for the particular branch of the graphic arts in which he is employed. As the negative is only a means to an end, a sequel to the complete tonal transfer, its characteristics must meet with the demands for the truthful reproduction of the screened image upon the metallic press plate.

Important Factors in Half-tone Negative Production

Primarily the problem confronting the camera operator who attempts to make half-tones hinges upon the following points:

1. Classification of the original.
2. Proper method of focussing screen.
3. Proper choice of lens aperture.
   (a) size and shape.
4. Correct exposure to produce—
   (a) truthful tonal qualities.
   (b) proper dot formation with due regard for size, shape and opacity.
   (c) precise definition.
5. A suitable negative for future operations.

Attributes of Good Originals

Owing to the fact that the use of a half-tone screen permits the reproduction of any continuous toned original, the demands for quality made upon it often exceed its flexibility. It is essential to realize that the process of half-tone reproduction never improves any qualities of an image, but can only detract by converting the even tonal gradation into a patch of dots of various sizes, and by reducing the contrasts between the highlights and shadows. A short tonal ranged photograph, or one in which the contrast between light and dark areas is very abrupt, will not reproduce as well as an original in which the transition from the highlight to the shadow is more gradual. I will discuss the value of good copy in a future article, entitled "Copy and Its Requirements."

Relation of Various Factors to Exposure

It is needless to say that all of the originals presented for reproduction can be classified according to their reproductive possibilities. The experience the camera operator has obtained while screening various originals is his basis for judging the immediate exposure. The classification of the original, however, is only one of the five factors which enters into exposure determination. The other four variable factors are as follows:

2. Strength of light.
3. Speed of the lens.
   (a) Focal length.
   (b) Aperture (effective).
4. Reproductive size.
5. Type of sensitive medium.

When color originals are presented, the presence of a filter in the lens is also a determining factor.

The introduction of the half-tone screen further increases the variable factors because, as I have pointed out in my previous article: (1) Every screen has a definite focal length; (2) A speed ratio can be assigned to each screen; (3) Screen distance alters the exposure to a slight degree.

Methods of Determining Screen Distance

The increased demand for speed in the production of half-tone negatives has fostered the improvement and manufacture of several mechanical attachments to coordinate in a balanced ratio all of the optical factors concerned in the production of half-tone negatives. However, the average offset camera lacks these mechanical devices, thereby placing the responsibility of the choice of the lens aperture and screen separation strictly upon the operator.

The manner in which the focussing of the screen is accomplished depends upon the several methods employed in the production of half-tone negatives. These methods can be enumerated at:

1. Set screen distance and a variation of stop sizes at various reproductive sizes.

2. One given set of stop sizes and a screen separation to balance the optical ratio of lens aperture to camera extension, and the screen aperture to the screen distance.

3. Adjusted separation and stop sizes.

The above methods can be altered somewhat by changing the general procedure during exposure, i.e., by employing either one stop, two stops, or three stops. The exposure time which the operator deems sufficient is based on the type of original presented for screening. Flashing, an auxiliary operation, often is included when the tonal gradation of the copy is too abrupt.

Since the definition of the half-tone negative is determined by the character of the dot, and since the screen apertures of different screen rulings have definite focal lengths, it is certain that the screen must be placed at a definite distance from the sensitive surface. Theoretically, this is done to converge the rays of light into light cones which come to a focus in the form of round dots on the sensitive medium.

The optical factors are further balanced by providing a set of lens stops which bear a definite ratio to the camera extension as the screen aperture bears to its distance from the negative medium. These ratios vary from 1 : 64, in which the screen distance is 64 times the screen aperture, through 1 : 45 and 1 : 90. The use of this ratio can be made to calculate the exact separation for any screen. Several of the screen distances for the screens used by the photo-lithographer are shown here with the 1 : 64 ratio.

Screens in line per inch	*Screen distance*
100	20/64
110	17/64
120	16/64
133	12/64
150	10/64

The figures in the table represent the calculated distance from the screen rulings to the sensitive surface.

As the scales on the side of the camera, adjacent to the screen distance pointer, are seldom adjusted with precision, a more accurate method of adjusting separations is to insert a small "feeler wedge" gauge between the ground glass on the camera bridge and the cover glass of the screen. The thickness of the cover glass (average thickness 3/32th inch) is subtracted from the table of calculated screen separations. Because the refractive index of light of the cover glass is 1/3 that of air, 1/16th inch is subtracted to correct the table.

The procedure of focussing the half-tone screen to secure proper separation has resulted in the formation of several systems. The simplest of these is one published by Stephen H. Horgan. He advised the use of a piece of ground glass with a transparent square in the center, placed on the plate bridge of the camera. A small magnifying glass placed against the glass is used to watch the dot formation as the screen is moved slowly towards the ground glass. When a thin connection between the corners of the dots is seen, the correct separation exists. The usual lens stop to use during the focussing operation is the middletone or F/32, after which the "pick up" exposures are applied. These exposures include the use of two or three stops during the general exposure.

The theory of the two stop system is that the large stop "highlight" registers the greatest amount of light reflected, while the small stop photographs the middletones and medium shadows.

The principles of the three stop method is that the highlight stop, usually F/22, collects the light from the brightest regions of the original, while the middletone, F/32, photographs the grays, and the F/43 builds up the dot formation and consequent detail in the medium shadows.

The one stop method might also deserve application, providing the original possessed gradual tonal variations. A larger stop is used, however, in order to decrease the exposure. The additional "flash" exposure is also applied to form dots in the deep shadows.

Good half-tone negatives ARE important. They increase immeasurably the opportunities for telling a complete and effective story . . . What author, for instance, is so gifted that he could improve on this photograph (which has been reproduced so faithfully only because of the half-tone negative) in suggesting the delights of Springtime?

Cheer up your halftone dots

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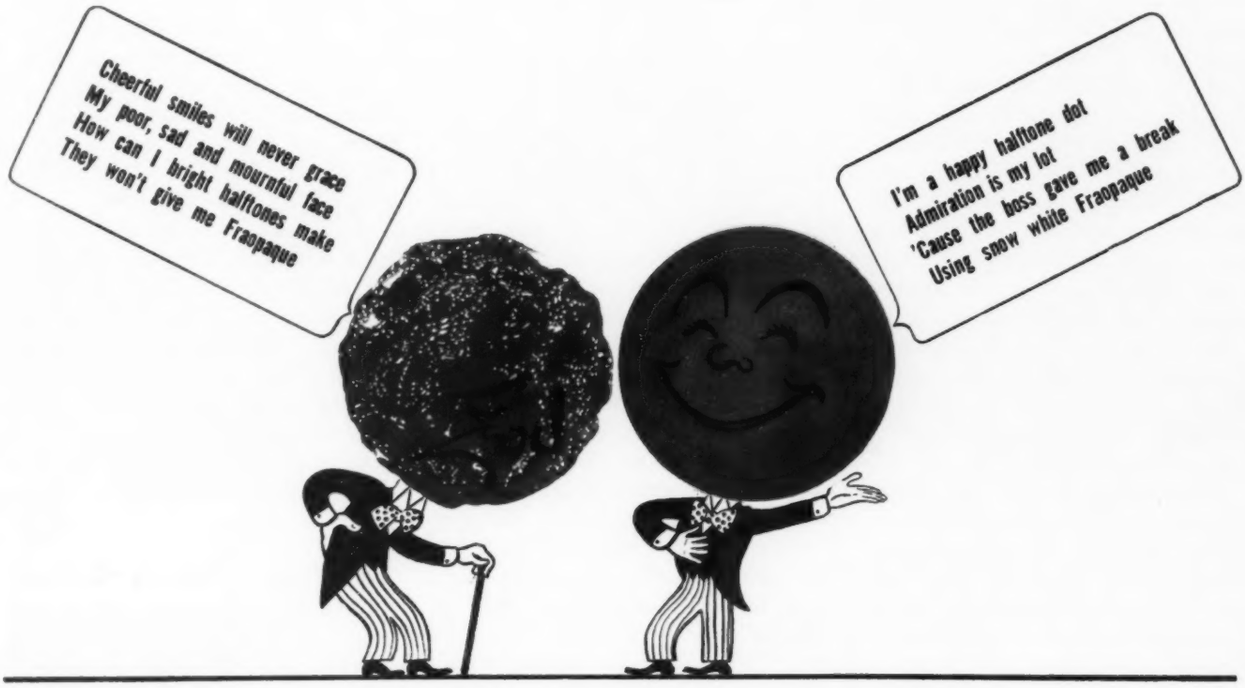
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NEW DEVELOPMENTS IN THE INK INDUSTRY

By ROBERT J. BUTLER
Chemist, General Ink Corporation, New York

Address delivered before New York Photo-Lithographers' Association, at the February meeting, Newark, N. J.

WE speak of new developments in the ink industry but before an accurate comparison may be drawn between the old and the new, it would be well to deal briefly with the fundamentals of ink construction.

Generally speaking, an ink consists primarily of vehicle, pigment and dryer. The vehicle or varnish is the carrying medium for the coloring matter or pigment and as efficiently as the vehicle performs, the printed matter suffers or is enhanced.

The dryer is the agent, known in the laboratory as the catylist, which introduces oxygen into the film and eventually transforms it from a liquid into a solid state.

The vehicle generally used is linseed oil which is converted into a lithographic varnish by a heating process. The degree of heat and length of the heating process is varied to produce different viscosities of varnish.

The pigments are salts of metals such as, for instance, lead chromate, iron blue, vermilion (sulphide of mercury), etc. Other materials used are derivatives of coal tar dyes such as Victoria Blue, Madder Lake, Yellow Lake, etc.

The usual types of dryers are salts of the metals cobalt, lead and manganese.

The research chemist devoting himself to vehicles took nature's own products, modified them with various synthetic materials and developed a product which surpasses the original in hardness, degree of gloss, faster drying and better resistance to the elements. Vehicles were also developed possessing better wetting qualities than lithographic varnish, far superior in drying and through their use, it is possible to meet conditions that previously were considered to be an impossibility. The fondest hopes, in some cases, were exceeded in respect to fast drying and scuffing resistance.

Pigment manufacturers did not lag behind in this procession and their progress is marked in the development of colors possessing greater light resistance, improved strength and finer particle size. This latter quality was one of their outstanding achievements. The greatest and most recent development was the discovery of Phthalocynine Blue (Monastral) and although this occurred in 1927, it did not find its way to general use by the ink manufacturer until 1934. Seven long years of experimental work were required to bring it to an acceptable point for the formulation of ink.

Dryers received, and still are receiving, the same intensive study and today the use of the new developments makes it possible to increase hardness to a greater degree without at the same time causing excessive drying on the press. Although experiments are still under observation, it is highly possible that these improved types may relieve, if not entirely eliminate, drying loss which now occurs in certain types as ink ages.

It is true that the major portion of inks used today are of lithographic varnish construction but the fast, hard drying, non-skinning inks are the products of the new synthetic vehicles and dryers which have made it possible to improve considerably on working properties, drying time and resistance to scratching and marring. They have also been of great value in gloss inks and overprint varnishes.

Another comparatively recent development are gloss inks which when used in conjunction with suitable stocks produce very beautiful effects.

The development of synthetics has also made it possible to greatly improve upon overprint varnishes which until recently were a source of grief to the average printer or lithographer. Today thousands of sheets are press varnished with little or no difficulty when handled properly.

The tin printing ink field has also shown remarkable progress for, by the use of synthetics, it has been possible to materially reduce both the baking time and temperature. Sheets are now delivered from the oven with an exceptionally hard film and may be stacked immediately instead of the former method of placing them on edge. The baked sheets are extremely hard and the ink is so firmly affixed to the tin that it seemingly is a part of it.

The progress of the industry during recent years could be discussed at great length but time and the knowledge of one individual is insufficient to more than generalize. What the future holds, we do not know, but judging by the achievements of the past decade, the developments to come are perhaps beyond the conception of all gathered here tonight.

Craftsmen Appoint Brower

Announcement has just been made of the appointment of Orlo F. Brower of The Northwest Paper Company, Cloquet, Minnesota, as Supervisor, Department of Paper of the International Association of Printing House Craftsmen.

In his capacity as Supervisor, Mr. Brower's long and intimate acquaintance with papermaking and paper problems will enable him to render invaluable assistance to the entire membership of the Association.

When Good Fellows Get Together!

"Pink Lady" or "Brown Hackle"

Brown Hackle, or Pink Lady—Royal Coachman or what have you. Whichever you favor, fishing flies for the expert are the same as for the dub. And when you come right down to it, isn't the difference between the expert and the dub just the difference in *knowing how?* The best tackle won't catch fish; it'll help, if you use it to its fullest advantage.

Preparing an effective catalog or display book is much the same thing. Everybody knows you've got to use bait, but if it's not alluring—if it won't catch and hold your customer's attention, then your catalog's not getting its share of the bites. If it doesn't impel the reader or user to choose your catalog and buy your product displayed or listed in it, then you're missing the big fellows who are waiting there to be caught.

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CORRECTING ERRORS IN OPERATION PROCEDURES

By WILLIAM C. HUEBNER
Huebner Laboratories, New York

THE following address was delivered by Mr. Huebner before the New York Photo-Lithographers Association at its February meeting, held in Newark, N. J.

I am glad to have this opportunity to talk to you about progress in offset plate making. I would prefer not to discuss machines or equipment, but confine my remarks to operation procedure followed by most of the photo-lithographers, and to point out some errors committed more or less in all shops. These errors can, and should be avoided, because errors cost money. Corrections and make-overs take time and eat into the profits which can be made in photo-lithographic reproduction work.

Checking Density of Dry Plate Negatives and Positives

One of the common faults in negative and plate making is neglecting to check the density of dry plate negatives or positives before they are printed down on metal. For example, the other day we had a press sheet sent to the laboratory that was produced on the Pacific Coast, using a well known deep etch process. Two or three press plates had been made before the sheet sent to me was obtained. It was claimed that all the operations were followed with the same care and exactness as other plates which had been successful, but the offset pressman claimed the plate was not made properly, and the plate maker claimed the offset pressman had spoiled the plate.

Inspection of the press sheet showed a crummy appearance of the dots, also very faint but easily detected streaks left from the gum sponge, or made when the gum was rubbed down which showed that the pressman probably tried to rub up the plate to get the work areas to take ink. Some of the dots appeared quite healthy—others were blind or gray. Clearly, here was another example of plate failure by the deep etch process and one way to avoid costly make-overs as indicated in the letter from the West Coast is to check the positive for density by holding it up to an arc light and if you can see your fingers through the so-called solid areas of the positive, you will know that the positive lacks density sufficient to hold back light action in the work areas when the exposure is being made. A plate that will look perfectly satisfactory to the eye may be just on the edge of permitting light to reach the sensitized plate where it is supposed to be blocked completely.

When a positive of this sort is used, a slight light action will leave a light hardened film in the dot or work areas and the plate may look all right after development and may take ink in sufficient quantity to appear like a healthy print. When such a plate is put on the press, it frequently happens that when the ink is washed out and asphaltum applied, the asphaltum coating does not adhere to the plate because the foundation has a partial light action.

If a lacquer is used in making the deep etch plate, the lacquer likewise will not have the hold on the metal plate when the partially light hardened film remains on the plate work areas. This interferes with correct deep etching, and while the lacquer may fill the etched portion, it will not have the firm hold it should have when a plate is sharply exposed and cleanly developed.

This shortcoming exists in all deep etch processes because a variation in quality of the positive, or in the thoroughness in which the plate is developed, the subsequent treatment with lacquer, or ink will lack proper adhesion to the plate. Hence a faulty press plate will always be the result.

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I have frequently pointed out that the industry still lacks a fool-proof plate because we are depending on materials having adhesive quality rather than the fundamental requirement of a good offset plate, viz., where the greasy image has a firm hold or bond with the metal itself.

Oxidized Plates

You all have experienced or know about a common occurrence on offset press plates, known as an oxidized plate, that is, a plate that apparently was good when the run started and later developed minute black spots in various parts of the plate. These spots have a tenacious hold on the plate far greater than the work itself, and will resist cleaning and etching far more than the work areas. The reason for this tenacious hold is that oxidation has taken place when water and gum and greasy ink have been permitted to dry slowly. The result of this oxidizing action is that the grease combines with the metal in somewhat the same manner as rust is formed on iron.

All that can be done at the present time is to observe thorough cleanliness in the utensils and keep the solutions mixed properly; also see to it that the positive, or the negative for that matter, if albumen is used, is of sufficient density and transparency to produce a clean sharp print on the metal plate.

In the near future, it will be possible to make a press plate without the use of lacquers or other so-called adhesives which are not completely ink receptive.

It is possible to produce an oxidized image plate which will always respond to ordinary treatment in the press and print as it is expected to print when handled with standard procedure on the offset press.

Gelatine Printing

I will pass around some samples of gelatine printing recently done on the offset press running at speeds of 3,000 to 3,600 per hour. These plates were coated with gelatine on a Vertical Coating Machine and show what can be done by direct exposures of continuous tone negatives on bi-

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chromated gelatine. The plates, if properly handled will run from 8000 to 12,000 impressions and, for longer runs, additional plates can be made within a reasonably short time.

The quality that is obtained from gelatine printing properly handled is particularly useful for fine book illustrations, and for catalogs, as well as for short run display work, indicated by these samples.

I am going to invite your members to visit the Laboratories and see a demonstration of gelatine coating and printing, and perhaps your officers can arrange for the use of an offset press so the plate can be printed. If this cannot be done in one evening then set aside one evening for plate making and the other for printing.

I will be glad to furnish any member with the practical working formula for making gelatine plates without charge for the formula.

The reason I am showing you samples of gelatine printing done on the offset press is that photo-offset printers have a distinct advantage in having a flexible process by which various kinds of work can be done to meet requirements. This advantage is not possessed by other methods of printing and if the gelatine process is mastered by close observations, orders can be had and executed efficiently at prices that will make it well worth your while.

Calendar Contributes to Tercentenary

The City Printing Co., New Haven, Conn., made a fine contribution to the celebration of New Haven's 300th Anniversary by publishing a large wall calendar, beautifully lithographed in five colors. It is illustrated with a composite picture of New Haven today. The varied architecture of each building, backed by East Rock (a beautiful natural phenomenon), produces a symphony of color. Every building and color stroke is sketched from life. A number of typical New Haven buildings, including some of Yale University, are included in the composite.

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Posed by New York's top models . . . shot in leading studio. Inspirational, clever and practical . . . great for idea men. A vast library of forceful subjects to meet every advertising need . . . RIGHT IN YOUR OWN OFFICE . . . at $5 a month. Glossy prints that will make your jobs sing. Write for free Promotion Proofs 104.

PHOTOMATS
10 E. 38th St., N. Y.

New Webendorfer Catalog Is Model of Completeness

A refreshing example of completeness in a catalog, presented attractively and without the monotony of heavy text pages, is the new catalog of Webendorfer-Wills Company, Inc., Mount Vernon, N. Y.

The new catalog, entitled "Offset Simplified—with Equipment Simplified," contains in its cleverly arranged twenty pages and cover, page size 8½ x 11, not only complete illustrated descriptions of the Webendorfer presses, but also a short history of Webendorfer progress through a quarter century; a very clear illustrated description of "The Simplified Method of Making Offset Press Plates"; specimens; a section devoted to offset for the printing of newspapers and periodicals; testimonial letters; a comprehensive questions and answers section; and a summary of the direct financial advantages of offset in printing.

Mid-States Co. Helps Lithographer Sell More Gummed Paper

Mid-States Gummed Paper Co., Chicago, have published a number of promotional pieces, planned to help the lithographer and letterpress printer in the selling of gummed paper. One piece contains a practical guide to proper gummings for different surfaces. All of the series are highly informative.

Buckley-Dement Company, Chicago, did the lithographing of one unusually attractive two-color poster stamp sheet that is used as an insert in one of the Mid-States pieces. The lithographing was done after the sheets were gummed.

Mid-States stress the flat laying quality found in their large line of gummed papers.

A number of specimens of letterheads printed by offset in a variety of colors are contained in a portfolio being distributed by Nation Wide Papers, Inc., of Chicago.

ADENA OFFSET Dual Control

Automatic control of moisture content "all the way through" makes certain the high quality for which Adena Offset is famous.

TUB SIZED
LIES FLAT
WILL NOT CURL

Control all the while Adena is being made . . . on the paper machine . . . through the entire process of sheeting, sorting and packing.

ADENA IS READY TO RUN

No more time wasted . . . no more bother, worry and experimentation when you use Adena Offset. Dual Control lets you put Adena Offset on the press right from the case or skid.

PRICED FOR QUANTITY RUNS!

Save Money by Shipping via Miami Valley Shippers' Assn.

Makers of Quality Offset, Lithograph and Book Papers

THE CHILLICOTHE PAPER COMPANY

Executive Offices and Mills: CHILLICOTHE, O.

Eastern Office: New York, N. Y. 41 Park Row

Sales Offices:

Pacific Coast Office: Los Angeles, Calif. 1003 N. Main St.

CHILLICOTHE—a buy-word for high grade papers

The Douthitt Diaphragm Control

The original scientific method of halftone negative making

Correctly balances all optical factors in negative making, thereby assuring correct and uniform negatives.

The negative is the basis of pictorial lithography, and with the Douthitt Diaphragm Control attached to the lens and camera, the operator can produce uniform negatives with accuracy at all times, eliminating all guess work.

The diaphragm control has now been in use for fifteen years in all branches of the graphic arts industry where the halftone negative is used.

Will be installed on approval for any reliable company.

WRITE US FOR PRICE AND FULL PARTICULARS

THE DOUTHITT CORPORATION

650 West Baltimore Avenue, Detroit, Michigan

Like hundreds of others, you will say "They're OK" when you try

Okay OPAQUE

Assures better finished halftones — and quicker . . . Smooth flowing for the rapid brush sweep; dense opacity; quick drying; non-cracking.

Okay DEVELOPING INK

Means dependable press plates in shorter time. Easily applied to any metal; clear, sharp, and acid resistant image; stands up for long life on press; releases easily, under high humidity from bare grain.

Okay CELLULOSE OPAQUE

For Masking. An opaque that really opaques.

Okay WET PROCESS PLATE

Oil Base. Designed expressly for wet process . . . Many lithographers say "It's perfect".

One trial of our "Art" Photo Lithographic Black will convince you of its density, gloss, and non-offsetting qualities.

Send for prices and samples to

FRANCIS G. OKIE CO.

247 S. Third Street Philadelphia, Pa.

or their Agents. Also manufacturers of High Grade Photo Offset Inks, Fine Printing Inks, Compounds, etc.

A REASON WHY

every one who sells to lithographers should advertise in The Photo-Lithographer.

It is thoroughly read both by the men who buy — in the office, and by the men who have important influence in the matter of what should be bought — in the shop. They appreciate its instructive and educational editorial content covering all phases of photo-lithography.

Photo-Lithographed Brochure Helps Toledo Celebrate Its Centennial

ONE of the most beautiful and impressive pieces of promotional material ever produced by photo-lithography or any other process is "This Is Toledo," a 64-page and cover brochure published by The Toledo (Ohio) Centennial Commission to help commemorate the one hundredth anniversary of the incorporation of the city of Toledo.

Not only was the conception of the book and its expert development very obviously in the hands of masters in the art of copy-writing and layout, but its mechanical production is a glowing testimonial to the skill of The Ohio Lithographing Company, of Toledo.

The brochure contains 170 photographs, and each one really helps to tell the story of Toledo, both historically and as it is today. The excellence of the photographs, both as interesting composition and as good copy, is the more remarkable when it is considered that most of them were taken by amateurs, members of The Toledo Camera Club, using in most instances miniature cameras, which called for many time enlargements. No retouching was done.

The 8½ x 11 front cover is impressive because of what it doesn't contain! The title, "This Is Toledo," done in lettering almost three inches high and lithographed in black, constitutes all of the copy. No illustrations, no ornaments, to detract from a title that contains in itself all the elements of interest necessary to hold the attention. A masterpiece of restraint!

A panoramic view of Toledo bleeds off the inside front and back cover, and every photograph in the 64 inside pages is a bleed-off, but clever layout has prevented any impression of heaviness in appearance.

"This Is Toledo" is noteworthy in another way—it has achieved distinction as an outstanding piece of promotional material, probably one of the best ever produced to promote the interests of a city, without the expenditure of a penny for art work and retouching of photographs.

The first edition of the brochure was 3,000 copies, and it was far oversubscribed by citizens of Toledo at $1.00 a copy. Another run is now being made by The Ohio Lithographing Company.

Any lithographer interested in having in his possession a showpiece that so brilliantly demonstrates the results that can be obtained through the expert application of photo-lithography, with all participants working together, should find it well worthwhile to secure a copy of this beautiful brochure. It may help him to sell a similar brochure—similar in quality, not necessarily in size—to the Chamber of Commerce or some other civic organization in his own city.

A New Color Guide for Metal Decorators

The beautiful effects that can be obtained by lithographing colors on tin are illustrated in a new "Color Guide for Metal Decorators," just published by the International Printing Ink Corporation.

Among the features of this book is a 20 color hue circuit, printed on metal plates. All the colors are obtained by using standard metal-decorating inks (IPI Lithox) either alone or in simple combinations.

By utilizing certain rules of color, harmonious combinations may be selected from this circuit. General information on color usage and color harmony is included in the book.

Also included are three sets of 22 metal plates, lithographed in various colors.

The book is designed to emphasize the unusual qualities of the new Lithox inks for metal decorating, which, according to the manufacturers, dry very rapidly.

The cover of the "Color Guide" is done in twelve colors which required six printings. The illustration achieves an effect which compares favorably with the best type of lithographing on paper.

SAM'L BINGHAM'S SON MFG. CO.

MANUFACTURERS OF

LITHO-OFFSET ROLLERS

MADE AS ORDERED OF

VULCANIZED OIL or LITHO-PRINT

ORDER THROUGH THE FACTORIES BELOW:

ATLANTA	DES MOINES	INDIANAPOLIS	MINNEAPOLIS
CHICAGO	DETROIT	KALAMAZOO	PITTSBURGH
CLEVELAND	DALLAS	KANSAS CITY	SPRINGFIELD, O.
NASHVILLE	HOUSTON	ST. LOUIS	OKLAHOMA CITY

Pacific Coast Representatives:

CALIFORNIA INK COMPANY, INC.

SAN FRANCISCO, LOS ANGELES, PORTLAND, SEATTLE, SALT LAKE CITY

A String on Your Finger

won't be necessary if you act now to get a copy of The Photo-Lithographer's Manual, one of the most comprehensive and complete compendiums of up-to-the-minute, authoritative information on photo-lithography ever published.

Now you can have at your fingertips data concerning every phase of photo-lithography.

No matter what you are interested in . . . selling, production, or management . . . it is exhaustively covered by text and illustration in the Manual's 337 lithographed pages, attractively and durably bound in cloth on heavy board.

Here is a wealth of tested, workable ideas presented by practical experts who have been successful, both commercially and technically, in photo-lithography.

ALL FOR $4.00
DON'T DELAY
ORDER NOW . . . TODAY!

Date .....

WALTWIN PUBLISHING CO., INC.
1776 Broadway, New York, N. Y.

You may send us ..... copies of The Photo-Lithographer's Manual at $4.00 the copy, plus postage. ..... less 5% for payment with order.

We enclose $ .....

☐ Also, enter our subscription for one year to The Photo-Lithographer, for which we enclose $3.00. ($4.00 in Canada and Other Countries)

FIRM .....

ADDRESS ..... *Street* ..... *City and State*

AUTHORIZED BY .....

A Story That Must Be Told

BECAUSE today relations between management and employees are more delicate in some respects than ever before, with photo-lithographic plants not an exception, the following article reprinted from *The Pick-Up*, the very interesting house magazine of United Parcel Service, may provide food to nourish more thoughtful consideration of each other both by management and employees.

Incidentally, the photo-lithographer who has his eyes open for new opportunities to do creative selling may find in this little article a suggestion as to where he might get an order for a booklet similar to the one published by Armstrong Cork Co.!

"A STORY THAT MUST BE TOLD—It is difficult for the average man not trained in business to distinguish closely between gross and net profits, a fact that explains much of the unfair criticism of business policies. Steps must be taken to correct this condition. Workers in industry are entitled to a better understanding of these things, and it is up to employers to furnish information that will give them that understanding.

"The Armstrong Cork Company recently issued to all of its people, 'from President right down the line,' a twenty-eight page booklet asking for an expression of opinion on company policies. 'Is the company doing everything it can to help us get what we want from our jobs?' was asked. The following seven things that people want from their jobs were listed: 'Security of job and income'; 'a fair wage for work performed'; 'safe, orderly work places'; 'pride in the policies, products and progress of your company'; 'reasonable working hours affording enough time for relaxation'; 'knowledge of what your company is doing and an opportunity to express your opinion freely'; 'an opportunity for you to be prepared in case of sickness, accident, disability, or death,' and 'to provide an income for your declining years.'

"Then followed a review of each point, with space in which to register an opinion as to how well the company 'measured up.'

"In addition there were two blank pages in which the employees were invited to 'shoot the works,' another page for classifying the worker —male or female, hourly or salaried, length of service, etc.,—and finally an inspiring résumé of the company's growth and prospects for future progress. Employees were not asked to reveal their names.

"Employees seldom realize the narrow margin on which practically all businesses are operated. They hear about gross receipts, which to them seem large, but they do not make proper allowances for the amounts paid out in wages, materials, supplies, depreciation, taxes, and overhead expenses. They don't understand how capital and income are used, and how wage increases are often possible only through increased efficiency rather than through higher prices for the goods or service sold. Business must give its working people a better understanding of these things."

LITHOGRAPHIC PLATE GRAINING CO.
OF AMERICA INC.

ONE reason why we have grown to be the largest plate graining plant in the world is that every plate, no matter how small, must be exactly *right* before it leaves our plant

. . . and it must leave "on time" or sooner than promised.

Zinc and Aluminum Plates

UNGRAINED • GRAINED
REGRAINED

•

We specialize in small plates; including plates for the Multilith.

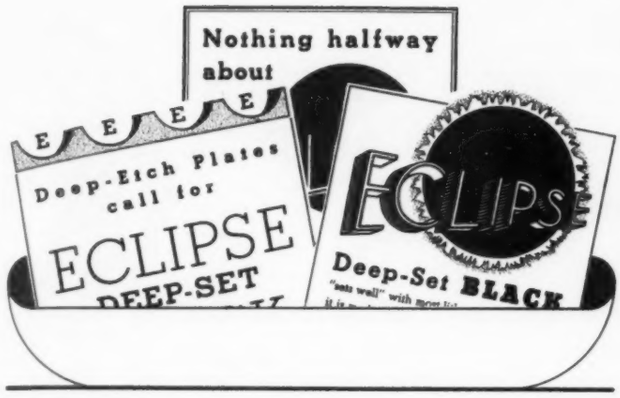
•

Service plus Quality

You get this important *combination* when you send your plates to us.

LITHOGRAPHIC PLATE GRAINING CO.
of America, Inc.

41-43 Box Street, Brooklyn, N. Y. **EVergreen 9-4260-4261**



Everything we have ever said about Eclipse simply boils down to this:

Use
ECLIPSE
DEEP-SET
BLACK

and you will get the most out of your deep-etch plates. The reason? Because Eclipse is made especially for deep-etch plates.

And, whether or not the plates are deep-etch, Eclipse gives sparkle, utmost opacity, prints clean, flows smoothly, covers evenly, never picks.

What more could you expect of an ink?

Eclipse is only one of the high-quality offset and letterpress inks made by us, both in black and colors.

GAETJENS, BERGER & WIRTH, INC.

Gair Building, 35 York Street, Brooklyn, N. Y.
538 South Clark Street, Chicago, Ill.

4

CENTRALLY LOCATED DISTRIBUTING POINTS

NEW YORK
CLEVELAND
CHICAGO
CAMBRIDGE
(MASS.)

•

COMPLETE STOCKS OF

HUNT'S

PHOTOGRAPHIC
AND
PLATE MAKING
CHEMICALS

•

SEE OUR LISTINGS IN THE WHERE-TO-BUY-IT SECTION OF THIS ISSUE

PHILIP A. HUNT COMPANY

2432 LAKESIDE AVE. CLEVELAND, OHIO
EST. 1909
1076 W. DIVISION ST. CHICAGO, ILLINOIS
253-261 RUSSELL ST. BROOKLYN, N. Y.
111 BINNEY STREET CAMBRIDGE, MASS.

WHEN IS A PHOTOGRAPHER A STRIPPER?—OR A PLATE-MAKER?—OR AN ARTIST?

By ADAM HENRI REISER

WHERE do my duties begin and how far do I go? The December issue of The Photo-Lithographer carried a letter embodying this question on a certain phase of presswork. How about the other branches? Is it a line photographer's work to shoot half-tones? Should he also know how to make plates? Should the stripper be a photographer? To some, because of the type of work they have been engaged in, there is no need for a discussion on this matter. Yet to others, bringing this into the light will aid immensely.

Can you stand a bit of review of the history of lithography? Personally, history always bored me to tears, so there is no intent of getting revenge by foisting too much of it upon the unsuspecting reader.

But in tackling a subject as heavy as this distribution of work between the various departments of the industry as constituted today, it is necessary to review briefly the lithography of yesterday. Five main branches were formerly alone in the industry. The stone-grinder, artist-engraver, transferrer, feeder, and pressman satisfied the most completely equipped plant not so long ago. The copy was sketched by the artist on instructions from the customer, then engraved or drawn upon a stone prepared for the artist-engraver by the stone-grinder. The transferrer then pulled impressions from the engraving or drawing and grouped a number of these subjects upon another stone prepared by the stone-grinder. This stone was then put into the flat-bed press and the job was run from it by the feeder and pressman.

Photo-Lithographic Divisions

Compare that with the photo-lithography of today. What is the composition of the well-equipped photo-lithographic plant of today? There's a poser. As the saying goes, "You've got something there." For the photo-lithography of today has more than one bent. The field may be divided into three main divisions.

1. Black and white photo-lithography with its Fordized production.
2. Pseudo color work, with its trick photo-lithography employing double exposures, multiple surprints, and air-brush opaqueing.
3. Real color work where the process color photo-lithography with its utilization of Kodachrome, photographic color extraction, and color correction is the vogue.

Then it becomes necessary to again subdivide these classifications into:

(a) small shops and

(b) large shops

But why go to all that trouble when, basically, photo-lithography and the offset principle underlies the entire group? To the uninitiated it all seems like blowing up a simple article into a spread over a few issues. To those familiar with the picture of this fast-growing industry, its mushrooming and gangling structure, the need for clarification is all too evident. And in that process of clarification it becomes extremely necessary to pull apart and tab the parts. For what applies to one group does not necessarily apply to all. We shall see that all too clearly as we go along. Let's examine the first division and see the set-up.

Mass Production

A visit to the modern black and white photo-litho house confronts one with an intricate, internal organization. This consists of—

copy-writers by the score who type copy all day;

retouchers of photographs;

order-writers who measure, scale, and plan the production of the pieces of work;

assistant photographers who group copies, put them up on the board, set the dials for focus and exposure time;

photographers inside the darkroom who position the film, paper or glass photographic material, then expose and remove the result from the camera back to pass it on through the slide into the developing room;

wet-plate photographers, paper photographers and film workers on line work;

some that work only on the half-tone screen work;

developers who develop and fix the result that has just been passed along to that unit;

assistants outside the room who remove the finished film, paper or glass plate, dry them and after sorting them as to job number, place them in their respective order bags;

strippers who gang the work onto combination sheets and strip the film, paper or wet-plate to large flats of paper, acetate sheeting or glass into positions determined by layouts;

opaquers who mask out the stripped work so that only the wanted sections will appear on the finished press-plate;

(*Continued on page 68*)

P&J

COLLODIONS

for

Better Wet Plates

HYDROQUINONE

for

Better Dry Plates

P&J

P&J

EGG ALBUMEN

for

Better Coating
of All Plates

A full line of quality
Photo-Lithographic Chemicals

●

WRITE FOR SAMPLES

PHILLIPS & JACOBS

622 RACE STREET, PHILADELPHIA, PA.

Over 70 years experience in
supplying Quality Chemicals

The lithographer nobody knows

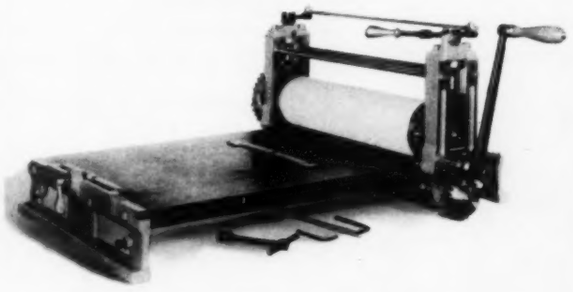
is the one who can turn out a good job with poor proofs! Assure yourself of perfect proofs—a *necessity* in producing the good job—by specifying a Wagner proof-press.

There's a

Wagner Proof-Press

for every requirement

FOR INSTANCE—



This press is especially suitable for many kinds of plate work in the smaller sizes—transfers, sketches, engravings, music, drawings, circulars, notes, color testing.

It is a light and rapid worker, producing a clean and even impression. It is easy to operate. The solid construction is similar to the construction of our regular line of offset proving presses. It can be set on a bench or table—ready for operation at all times.

Made in two sizes—12"x16" and 14"x21".

Write for particulars of this and other sizes and kinds of presses "for perfect proving."

Charles Wagner Litho Machinery Co.

Division of NATIONAL-STANDARD CO.,
Niles, Mich.

51-55 PARK AVENUE HOBOKEN, N. J.

DID YOU EVER SEE

HYDROQUINONE

LIKE THIS?

When you examine Mallinckrodt Hydroquinone, Photo-Purified, with the naked eyes, you see a soft, silky texture. But the photo-reproduction at the bottom of this page shows it as the camera sees it, enlarged several times. Notice the extreme uniformity of the crystals. This insures easier handling, in weighing or measuring. See how distinctly separate the crystals are—no inclination to form lumps. For the first time, we have been able to illustrate photographically the phrase "physically perfected", as applied to hydroquinone.

This uniformity — physical as well as chemical — is characteristic of the entire Mallinckrodt Line of Photo-Chemicals. Mallinckrodt also offers a complete line of Lithographers Chemicals from Albusol * (albumen) to Zinc Stearate. Specify definitely when you order—"MALLINCKRODT".

* Reg. U. S. Pat. Off.

Mallinckrodt

CHEMICAL WORKS

Second and Mallinckrodt Sts., St. Louis, Mo.
72-74 Gold St., New York, N. Y.

CHICAGO PHILADELPHIA TORONTO MONTREAL

At last! a device that automatically times light exposure and cuts off at exactly the right time.

•

The Automatic Halftone Diaphragm Control

A simple device that insures high grade negatives of uniform quality, performs perfectly and quickly on all size reductions retaining the values of the copy.

The Automatic Diaphragm Control will help you to step up quality and reduce costs in your camera department.

The Automatic Diaphragm Control is easy to operate: dial to size wanted, and one push of a button automatically gives the correct diaphragm opening with the right light exposure.

The Automatic Diaphragm Control is quick in all its operations and requires no attention after the start.

The Automatic Diaphragm Control will be demonstrated any time by appointment in our plant. Specimen sheets on request.

•

R. P. NEWICK

187 SYLVAN AVE. NEWARK, N. J.

Hammermill Portfolio Leaves Little Unsaid

Outstanding among the promotional efforts of paper companies is a mammoth portfolio just issued by Hammermill Paper Company, Erie, Pa., containing thirteen specimens of Hammermill Offset in various weights and finishes, all full press sheets, and all lithographed in colors, mostly process.

No lithographer can complain that this portfolio of imposing specimens does not give him a chance to size up all the qualities of the paper. Not only is the careful conditioning of the paper testified to by the perfect register of colors in the multi-color specimens, but the large sheets invite critical inspections for other important lithographing qualities.

Nothing picayune about this latest of a series of brilliant Hammermill promotional pieces. Even if it won't go into the ordinary paper specimen file, it is well worthy of a place on *top* of the file!

Do Not Seal Third Class Mail

One of the little items often neglected when advertising pieces are being planned is the question of folding and sealing. Recently a printer was considerably embarrassed when a mailing intended to be sent out third class had to be sent out first class because the postal inspectors could not examine them without breaking the seal.

To be open to inspection, an advertising piece must be mailed either in a penny-saver envelope, or, if it is designed as a self-mailer, it must be folded and sealed so that inspection of both sides of the piece is possible without breaking the seal. For if the seal must be broken for inspection, advertising literature is first class mail, regardless of its creator's intention.

At the outset this sounds like a dire limitation. But those favoring large size pieces with intricate folds still have an ace in the hole: the common wire staple. Tucked away in the depths of P. L. & R. is a rule permitting the use of wire staples on those mailing pieces whose folding ordinarily would close them against complete inspection.

Monotype-Huebner Equipment Attractively Presented

Lanston Monotype Machine Company, Philadelphia, recently issued an eight-page folder, attractively lithographed in three colors, which contains illustrated descriptions of all of the photo-mechanical equipment manufactured by them.

Monotype-Huebner plate coating machine, vertical photo-composing machine, non-embossing negative holder, photo-imposing system, overhead color-precision camera, and Monotype-Directoplate all-metal precision camera and Simplex photo-composing machine are the items described.

A request to Lanston Monotype Machine Company, 24th at Locust Street, Philadelphia, Pa., will bring a copy of the folder to any reader.

EQUAPO

"ANOTHER TRIANGLE TRIUMPH"

A NEW OFFSET BLACK THAT GIVES AMAZING RESULTS

This brand-new Offset Black Ink our chemists have recently perfected has a density that will surprise you. It works smoothly on the press; has all the coverage you expect; dries quickly, yet does not tone down; gives to solids that rich, velvety effect your customers like, yet prints type and fine details of halftones as clean and sharp as could be desired. Test out EQUAPO on the next job for a fussy customer. You will then agree that it is the finest offset black that has ever been produced with complete opacity, richness of tone, yet moderately priced.

Two other inks we have at last perfected and offer to the lithographic trade as the best of their kind are a Permanent Persian Orange and a Transparent Permanent Yellow. These will not drop out, and are free from those defects you may have encounted in other yellow and Persian orange inks. Test out these inks, too, and you will be agreeably surprised at the results they give.

TRIANGLE INK and COLOR CO. INC

Manufacturers of Fine Litho & Printing Inks for All Purposes

Service Offices
219 W. FRANKLIN ST., BALTIMORE, MD.
231 CONGRESS STREET, BOSTON, MASS.
1036 BEAUBIEN ST., DETROIT, MICH.
13 SOUTH 3RD STREET, ST. LOUIS, MO.

AUGUST ELDRIDGE SCHIEFER

Main Office & Factory
26-30 FRONT STREET, BROOKLYN, N. Y.
Telephone Triangle 5-3770-71

(*Continued from page 64*)

plate-grainers who remove the old work from the lithographic press-plate (zinc or aluminum) and freshly prepare the surface by regraining it to receive new work;

plate-coaters who prepare the newly grained plate, coat it and whirl it with the albumen solution;

plate-makers who position the stripped flat on the coated plate, expose it, ink and develop the image just obtained;

tuschers who touch up the broken lines, letters and add other work that may be necessary;

plate-finishers who etch and roll up the work for the pressroom;

operators who position the sheets in the press and otherwise help the pressman in taking care of the feeding end of the press;

pressmen who position the plate in the press, set the guides in the machine, mix the ink and fountain dope, get lay and register and color OK and run the job off.

In addition to these, there will also be found help for glass cleaning, negative storing, supply department, paper handling, shipping, cutting and finishing, and porter work. For the purpose of this treatise, however, those factors shall be considered constant and necessary to all groups and therefore will just be mentioned here.

So well-organized is this production in the black and white group No 1, that twenty-four hour promises are routine. Indeed, orders running into three and four thousand dollars' worth of work have been turned out in a week's time, despite the fact that the entire gamut of material for an advertising campaign was included, such as salesman's instructions, pamphlets, counter-pieces, displays, letters, etc.

Color Photo-Lithography

As the work becomes more complex, and we pass on to the second division, specialization still exists, but the man power needed must be of a higher standard. The entire organization must be geared to an understanding of color and its place in the production scheme. Copy must be created to get the most from it by camera means. Therefore copy checkers, order writers, in fact the entire personnel must possess the ability to think in terms of the trick color production. And this often becomes so involved as to call for the highest degree of skill to get the work out in saleable shape.

This required ability brings with it different ratings, for even as the restricted line photographer knows no half-tone work, so the regular half-tone photographer will rarely know color separation photography. This carries right on through the stripping, opaqueing, and presswork fields. Even though the specialization is still carried on, it is folly to believe the black and white opaquer can be pieced right into the color field. And, again, that goes for the other branches.

The operator on the offset press, for illustration, must get his sheets down to the guides properly without too great a force and yet enough push must be present to get them up to the guides. They must hit alike or else the bouncing in and out of the sheets will surely tell on the fit of the following colors. Of course this is also true to a degree when book-work is printed, for the sheets must back up so that the signatures and impositions register accurately. But color work allows no slight variation such as may be permissible in the black and white fields. Then, too, the color drying and printing actions are different again from black. Each color ink seems to have its own peculiarity. Mixing colors to obtain customer approval carries with it a great deal of practical trade knowledge that comes only with years of experience.

While all this is important in the second classification, it becomes even more so when the third group is entered. The degree of skill required here becomes greater, allowing for a minimum of deviation. In three or four color work, register and printing mean so much. The slightest difference in the strength of one of the colors, or in the amount of work on the plate in one of the colors, will produce an entirely and surprisingly different end result from that desired. Therefore that calls for the highest degree of color separation photography possible by the camera man. In addition to the branches enumerated in the early part of this article we now have need for a color correction artist with an intricate knowledge of color values and how to interpret them into dot formation. And, needless to say, the plate-maker must transfer accurately to the press-plate the values which the artist has translated on the glass.

The outstanding thought that should have been gotten home up to this point is the increasing height of the theoretical wall which separates the branches as we go from class No. 1 to No. 3. Can you see that? And as the wall gets higher, the chance of scaling it becomes slimmer. As the degree of skill in the respective branches becomes greater, the chances of any one man filling two places at once becomes slimmer. So much for that.

Small-Large Shop

Up to this point there is probably a general agreement upon the maze of hands through which the work passes to become a finished product. When large-scale production is considered, with its steady stream of work, a well-oiled machine is assured, each unit of which carries out the particular function of that unit. As the plant size decreases, however, another picture is presented. In the very small shop, for illustration, it becomes wasteful to carry such a tremendous working force as that carried by the largest sized plant. Consequently the subdivisions of labor become broader. There no longer exists that narrow classification prevalent in the mass-production scheme of things. There now are fewer groups.

It is true that the fundamental processes remain the same, whether we view the small or large shop. The manner of working the processes also remains the same. But the crew engaged in turning out the finished product is much smaller in number. Therefore we have that overlapping

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of duties referred to before as the broader subdivisions of labor. To illustrate this, let's take an extreme case.

Many photo-litho shops manage to exist with a crew of four men in the shop and an office force of one or two. The copy-writer, sketch-artist, order-writer, bookkeeper and stenographer may all be the same person—sort of a one-man band. Or, if the volume of work is sufficient, two persons may be necessary to fill those duties. In the shop, the camera man is an all-round man capable of doing line, half-tone and color separation work. The stripper acts as stripper, opaquer, plate-maker, finisher, tuscher and, if there is a composing machine, he may also operate that.

The pressman and his operator must be thoroughly familiar with all the branches of offset printing from the black and white field through the finest class of color work. This latter skill may be needed if that type of job comes through the plant, in which case the color separation negatives and color correction may be executed outside the plant, the plates being shot in the small plant. If, however, the plant boasts no composing machine the plates will also have to be made outside, to be run off the press in the shop when finished. Such a complement of men, however, is only effective for a limited volume of work.

Isn't it surprising that little or no recognition has been paid up to now to the wide range of skill necessary in the camera room and the plate-making department of the small shop? Isn't it even more surprising to hear of a request now and then for a man to handle the camera and plate-making work together? And, of course, the prize winner of the group is the situation where one man is asked to take over the camera, plate-making, and presswork. I suppose it has been done. But if there is anything to this specialization thing at all, then a one-man band in lithography is all out of tune.

There may be instances of where such an unauspicious start bloomed out into a fair-sized litho shop. But the reason for their growth differs from the story of the trees on the estate of a certain gentleman. This man, always taking the gardeners to task for the little work he thought they did, expressed admiration upon the fast growth of the trees upon his place. To which the gardener answered, "Why not, they have nothing else to do."

In the article next month we'll develop the duties of the workers in the various branches a bit more as required in the different types of plants mentioned in the outline. An elastic consideration of their range will be shown to be the best attack of the problem as to who shall do what and when shall he or she be permitted to do it? This is so necessary for the best interests of the industry, that discussion is welcomed upon the subject. Please send in your thoughts on the matter either after this or the closing article. Your name, of course, will not be mentioned, merely the thoughts being desired.

IPI Essay Contest Winners Announced

FOR the second time in two years, a Los Angeles printing student won a $400 university scholarship in the IPI Essay Contest on Color, sponsored in cooperation with the National Graphic Arts Education Guild.

National winners in the competition were announced this month by Fred J. Hartman, chairman of the Guild.

The Los Angeles boy is William Brown, 16 years old, a junior in the Abraham Lincoln High School. William is editor of his school paper, "The Railsplitter," and he hopes to make journalism or publishing his life work.

Last year's essay contest was won by Reg Sundin from the Frank Wiggins Trade School, Los Angeles. He is now a freshman at Carnegie Tech's College of Printing.

The entrants were divided into two groups this year—freshmen and sophomore students in one, and juniors and seniors in the other. These are the national winners, as chosen by a jury headed by Harry L. Gage, vice-president of the Mergenthaler Linotype Co., Inc.:

Freshmen and sophomores: First prize (trip to New York City) won by Joseph Kuchinsky, Junior High School No. 73, Maspeth, Long Island; Second prize ($50 practice printing press) won by Mary Potter, Pattengill Junior High School, Lansing, Michigan.

Juniors and seniors: First prize (Carnegie scholarship and a job at IPI) won by William Brown; Second prize (trip to New York City) won by Harold Sakol, New York School of Printing, New York City.

Ironically, the trips to New York City were both won by boys who could make the trip via the New York subway system. Suitable substitute awards will be made to these students.

The two national winners will receive gold Franklin Medallions, and the two second prize winners will be awarded silver ones.

About 6000 printing students from 270 schools in the United States and Canada submitted essays this year.

Enlarge Plate Graining Facilities

Lithographic Plate Graining Co. of America, Inc., are adding more substantiation to their claim that they are the largest plate grainers in the world with the building of an addition to their plant at 41 Box Street, Brooklyn, N. Y.

The addition will consist of one floor and a basement, with floor 25 feet by 50 feet. It will be ready for use about the middle of April, with a capacity for six additional graining machines.

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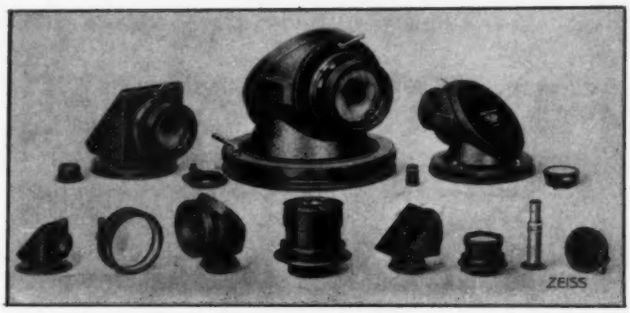

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• EQUIPMENT AND MATERIALS *Review* •

Contributions for this section are welcomed from manufacturers who have established unquestionable proof of the contribution of their product in improving efficient operation of photo-lithographic plants, preferably through actual use in a number of plants.

Publication of any contribution should not be construed as an endorsement by The Photo-Lithographer of any of the statements made in it.

New Type Multi-Color Offset Press

The Webendorfer-Wills Co., Inc., Mt. Vernon, N. Y., has built for the California-Oregon Paper Mills, Los Angeles, California, a large web reel-fed offset press which lithographs three colors from one impression cylinder.

This press, a roll fed with rewind delivery, to which can be attached cutterhead and flat sheet chain bar delivery, handles a maximum sheet 33″ x 48″. It can maintain a high running speed of over 10,000 cylinder revolutions per hour on three color work.

The printing units are equipped with special registering devices so that the register work can be controlled accurately and quickly. The three plate cylinders are arranged for quick changing of plates. The press is operated from the floor, and the ink rollers and fountains are readily accessible.

You Could Eat Off These Ink Mixing Tables

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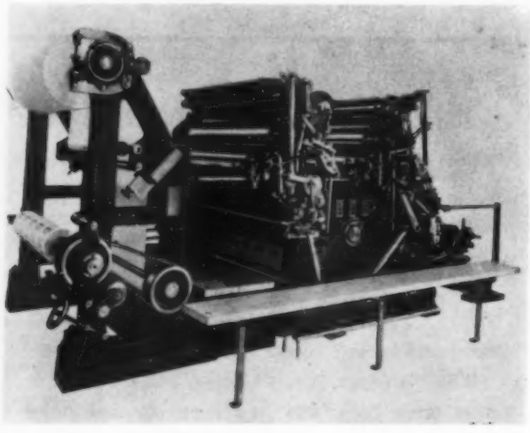

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FUCHS & LANG MFG. CO., Div. General Printing Ink Corp., 100 Sixth Ave., New York, N. Y.
GEVAERT CO. OF AMERICA, INC., THE, 423 W. 55th St., New York, N. Y.
INTERNATIONAL PRINTING INK CORP. THE, 636 11th Ave., New York, N. Y.
ROBERTS & PORTER, INC., 100 Lafayette St., New York, N. Y., and 402 S. Market St., Chicago, Ill.
SENEFELDER COMPANY, INC., THE, 32-34 Greene St., New York, N. Y.

FOLDING MACHINERY
BAUM, RUSSELL ERNEST, 615 Chestnut St., Phila., Pa.
DEXTER FOLDER CO., 28 W. 23rd St., New York, N. Y.

GLYCERINE
HUNT, PHILIP A., CO., 253 Russell St., Brooklyn, N. Y.—2432 Lakeside Ave., Cleveland, O.—1076 W. Division St., Chicago, Ill.—111 Binney St., Cambridge, Mass.
PITMAN, HAROLD M., CO., 150 Bay St., Jersey City, N. J., and 51st Ave. and 33rd St., Chicago, Ill.

GRAINING FLINT
INTERNATIONAL PRINTING INK CORP., THE, 636 11th Ave., New York, N. Y.
NEW ENGLAND QUARTZ CO. OF NEW YORK, 450 7th Ave., New York, N. Y.
SENEFELDER COMPANY, INC., THE, 32-34 Greene St., New York, N. Y.

GRAINING AND REGRAINING—Zinc, Aluminum, Glass and Multilith Plates
CHICAGO LITHO PLATE GRAINING CO., 214-16 N. Clinton St., Chicago, Ill.
ILLINOIS PLATE GRAINING CO., INC., 913-921 W. Van Buren St., Chicago, Ill.
INTERNATIONAL PRINTING INK CORP., THE, 636 11th Ave., New York, N.Y.
LITHOGRAPHIC PLATE GRAINING CO. OF AMERICA, INC., 41 Box St., Brooklyn, N. Y.
MADDOX LITHOPLATE GRAINING CORP., 503 S. Jefferson St., Chicago, Ill.
MCKENNA, JAMES J., 1015 Callowhill St., Phila., Pa.
NATIONAL OFFSET SUPPLY CO., 613 N. Broadway, St. Louis, Mo.
PHOTO-LITHO PLATE GRAINING CO., INC., 1207 S. Highland St., Baltimore, Md.
RELIABLE LITHOGRAPHIC PLATE CO. INC., 17 Vandewater St., New York, N. Y.
SENEFELDER COMPANY, INC., THE, 32-34 Greene St., New York, N. Y.
WESTERN LITHO PLATE & SUPPLY CO., 1019 Soulard St., St. Louis, Mo.

GRAINING MACHINES

Fritsche, R., 145 Hudson St., New York, N. Y.
Hoe, R., & Co., Inc., 910 E. 138th St., at East River, New York, N. Y.
McKinley Litho Supply Co., 1600 John St., Cincinnati, O.
Zarkin Machine Co., 335 E. 27th St., New York, N. Y.

GRAINING QUARTZ FLINT

International Printing Ink Corp., The, 636 11th Ave., New York, N. Y.
New England Quartz Co. of New York, 450 Seventh Ave., New York, N. Y.

GUM ARABIC

Hunt, Philip A., Co., 253 Russell St., Brooklyn, N. Y.—2432 Lakeside Ave., Cleveland, O.—1076 W. Division St., Chicago, Ill.—111 Binney St., Cambridge, Mass.
International Printing Ink Corp., The, 636 11th Ave., New York, N. Y.
Pitman, Harold M., Co., 150 Bay St., Jersey City, N. J., and 51st Ave. and 33rd St., Chicago, Ill.
Senefelder Company, Inc., The, 32-34 Greene St., New York, N. Y.

HAND ROLLERS

Roberts & Porter, Inc., 100 Lafayette St., New York, N. Y., and 402 S. Market St., Chicago, Ill.
Senefelder Company, Inc., The, 32-34 Greene St., New York, N. Y.
Siebold, J. H. & G. B., Inc., 47 Watts St., New York, N. Y.

HUMIDIFICATION

Carrier Engineering Co., Syracuse, N. Y.
Southworth Machine Co., 30 Warren Ave., Portland, Me.

HYDROQUINONE

Hunt, Philip A., Co., 253 Russell St., Brooklyn, N. Y.—2432 Lakeside Ave., Cleveland, O.—1076 W. Division St., Chicago, Ill.—111 Binney St., Cambridge, Mass.
Mallinkrockdt Chemical Works, 3600 N. Second St., St. Louis, Mo., and 72-74 Gold St., New York, N. Y.
Norman-Willets Co., 318 W. Washington St., Chicago, Ill.
Senefelder Company, Inc., The, 32-34 Greene St., New York, N. Y.

INK COMPOUNDS

Indiana Chemical & Mfg. Co., Indianapolis, Ind.; New York City, N. Y., and Chicago, Ill.

INKS

Acheson Ink Co., Inc., 142 Skillen St., Buffalo, N. Y.
Acme Printing Ink Co., 1315 W. Congress St., Chicago, Ill.
American Printing Ink Co., Div. General Printing Ink Corp., 2314 W. Kinzie St., Chicago, Ill.
August, Charles, Corp., The, 416 Orleans St., Chicago, Ill.
Blacker, H., Printing Inks, Inc., 304 Lock St., Cincinnati, O.
Bowers Printing Ink Co., 711 W. Lake St., Chicago, Ill.
Braden-Sutphin Ink Co., 3700 Chester Ave., Cleveland, O.
California Ink Co., 545 Sansome St., San Francisco, Calif.
Ceb Printing Ink Co., 817 Washington Blvd., Chicago, Ill.
Crescent Ink & Color Co. of Penna., The, 464 N. 5th St., Phila., Pa.
Driscoll, Martin, & Co., 610 Federal St., Chicago, Ill.
Flint, Howard, Ink Co., 2545 Scotten Ave., Detroit, Mich.
Fuchs & Lang Mfg. Co., Div. General Printing Ink Corp., 100 Sixth Ave., New York, N. Y.
Gaetjens, Berger & Wirth, Inc., 35 York St., Brooklyn, N. Y., and 538 S. Clark St., Chicago, Ill.
Herrick, Wm. C., Ink Co., Inc., 325 W. 34th St., New York, N. Y.
Hill-Hentschel Co., 3928 Clayton Ave., St. Louis, Mo.
Huber, J. M., Inc., 460 W. 34th St., New York, N. Y.
International Printing Ink Corp., The, 636 11th Ave., New York, N. Y.
Johnson, Charles Eneu, & Co., Inc., 10th & Lombard Sts., Phila., Pa.
Kohl & Madden Printing Ink Co., 731 Plymouth Court, Chicago, Ill.
Levey, Frederick H., Co., Inc., 1223 Washington Ave., Phila., Pa.
Mayer, Robert, Co., Inc., 1107 Grand St., Hoboken, N. J.
Prescott, H. S., 238 Dwight St., Springfield, Mass.
Roberts, Lewis, Inc., 72 Union St., Newark, N. J.
Roosen, H. D., Co., Ft. 20th-21st St., Brooklyn, N. Y.
Schwarm & Jacobus Co., The, 1216 Jackson St., Cincinnati, O.
Senefelder Company, Inc., The, 32-34 Greene St., New York, N. Y.
Siebold, J. H. & G. B., Inc., 47 Watts St., New York, N. Y.
Sinclair & Carroll Co., Inc., 591 11th Ave., New York, N. Y.
Sinclair & Valentine Co., Inc., 11-21 St. Clair Pl., New York, N. Y.
Sleight Metallic Ink Companies, Inc., 538 N. Third St., Phila., Pa.
Superior Printing Ink Co., Inc., 295 Lafayette St., New York, N. Y.
Triangle Ink & Color Co., Inc., 26 Front St., Brooklyn, N. Y. (also Boston, Mass., Baltimore, Md., and St. Louis, Mo.).
Williams, R. S., Co., Inc., 257 W. 17th St., New York, N. Y.
Winslow Ink Corp., 124-132 White St., New York, N. Y.

INK WAX REDUCER (Smoothol Ink Wax)

Smith, Francis X., Co., 952 E. 93rd St., Brooklyn, N. Y.

INSURANCE—Workmen's Compensation

N. Y. Printers & Bookbinders Mutual Insurance Co., 147 Fourth Ave., New York, N. Y.

LAMPS, Arc

Atlas Electric Devices Co., Inc., 361 W. Superior St., Chicago, Ill.
Beattie's Hollywood Hi-Lite Co., 1560 N. Vine St., Hollywood, Calif.
Gelb, Joseph, Mfg. Co., 250 W. 54th St., New York, N. Y.
Macbeth Arc Lamp Co., 875 N. 28th St., Phila., Pa.
Pease, C. F., Co., The, 2601 W. Irving Park Road, Chicago, Ill.
Sullebarger, E. T., Co., 116 John St., New York, N. Y., and 538 S. Clark St., Chicago, Ill.

LENSES

Bausch & Lomb Optical Co., Rochester, N. Y.
Goerz, C. P., American Optical Co., 317 E. 34th St., New York, N. Y.
Norman-Willets Co., 318 W. Washington St., Chicago, Ill.
Pitman, Harold M., Co., 150 Bay St., Jersey City, N. J., and 51st Ave. and 33rd St., Chicago, Ill.
Sullebarger, E. T., Co., 116 John St., New York, N. Y., and 538 S. Clark St., Chicago, Ill.
Zeiss, Carl, Inc., 485 Fifth Ave., New York, N. Y.

LINE-UP AND REGISTER MACHINES, SYSTEMS AND TABLES

Craftsmen Line-Up Table Corp., 49 River St., Waltham, Mass.
Douthitt Corp., The, 650 W. Baltimore Ave., Detroit, Mich.
Hamilton Mfg. Co., Inc., Two Rivers, Wis.
Lanston Monotype Machine Co., 24th at Locust, Phila., Pa.
Miles Machinery Co., 18 E. 16th St., New York, N. Y.
Robertson, R. R., 400 W. Madison St., Chicago, Ill.
Wesel Mfg. Co., 468 Fourth Ave., New York, N. Y. and Scranton, Pa.

LITHO DEVELOPING INK

Hunt, Philip A., Co., 253 Russell St., Brooklyn, N. Y.—2432 Lakeside Ave., Cleveland, O.—1076 W. Division St., Chicago, Ill.—111 Binney St., Cambridge, Mass.
International Printing Ink Corp., The, 636 11th Ave., New York, N. Y.

LITHO ENGRAVING AND DRAWINGS

Litho Trade Service Studio, 538 S. Clark St., Chicago, Ill.

LITHOGRAPHIC EQUIPMENT DISTRIBUTORS

Heuslein, R. J., Co., 11 S. Meridian St., Indianapolis, Ind.

MACHINISTS

Gegenheimer, Wm., Inc., 78 Roebling St., Brooklyn, N. Y.
Rathbun & Bird Co., Inc., 85 Grand St., New York, N. Y.

MAGNIFYING AND REDUCING GLASSES

Norman-Willets Co., 318 W. Washington St., Chicago, Ill.
Repro-Art Machinery Co., Wayne Ave. & Berkeley St., Phila., Pa.
Zeiss, Carl, Inc., 485 Fifth Ave., New York, N. Y.

MAKE-UP TABLES

Lanston Monotype Machine Co., 24th at Locust, Phila., Pa.
Miles Machinery Co., 18 E. 16th St., New York, N. Y.
Robertson, R. R., 400 W. Madison St., Chicago, Ill.
Wesel Mfg. Co., 468 Fourth Ave., New York, N. Y. and Scranton, Pa.

METAL DECORATING EQUIPMENT

Wagner, Charles, Litho Machinery Co., Div. of National-Standard Co., 51 Park Ave., Hoboken, N. J.

MOLESKIN AND MOLLETON

International Printing Ink Corp., The, 636 11th Ave., New York, N.Y.
McKinley Litho Supply Co., 1600 John St., Cincinnati, O.
Roberts & Porter, Inc., 100 Lafayette St., New York, N. Y., and 402 S. Market St., Chicago, Ill.
Senefelder Company, Inc., The, 32-34 Greene St., New York, N. Y.
Siebold, J. H. & G. B., Inc., 47 Watts St., New York, N. Y.
Wagner, Charles, Litho Machinery Co., Div. of National-Standard Co., 51 Park Ave., Hoboken, N. J.

MOTORS AND CONTROLLERS

Cline Electric Mfg. Co., 211 W. Wacker Drive, Chicago, Ill.

NEGATIVE MATERIALS

Agfa Ansco Corp., Binghamton, N. Y.
Cramer, G., Dry Plate Co., Lemp & Shenandoah Ave., St. Louis, Mo.
Eastman Kodak Co., Rochester, N. Y.
Gevaert Co. of America, Inc., The, 423 W. 55th St., New York, N. Y.
Haloid Co., The, 6 Haloid St., Rochester, N. Y.
Hammer Dry Plate & Film Co., Ohio Ave. & Miami St., St. Louis, Mo.
Norman-Willets Co., 318 W. Washing St., Chicago, Ill.

OFFSET PLATE MAKING SERVICE

(See Plate Making Service)

OPAQUE AND DEVELOPING INK

Acheson Ink Co., Inc., Skillen St., Buffalo, N. Y.
Artists' Supply Co., 7610 Decker Ave., Cleveland, O.
International Printing Ink Corp., The, 636 11th Ave., New York, N. Y.
Okie, Francis G., 247 S. Third St., Phila., Pa.
Senefelder Company, Inc., The, 32-34 Greene St., New York, N. Y.

PAPER

Aetna Paper Co., The, Dayton, O.
American Writing Paper Co., Holyoke, Mass.
Beckett Paper Co., The, Hamilton, O.
Brown Co., Portland, Me.
Cantine, Martin, Co., The, Saugerties, N. Y. and 41 Park Row, New York, N. Y.
Case & Risley Press Paper Co., Oneco, Conn.
Champion Paper & Fibre Co., Hamilton, O.
Chillicothe Paper Co., The, Chillicothe, O.
Crocker-McElwain Co., Holyoke, Mass.
Dill & Collins, Inc., Richmond & Tioga Sts., Phila., Pa.
Falulah Paper Co., Fitchburg, Mass., and 500 Fifth Ave., New York, N. Y.
Fraser Industries, Inc., Graybar Bldg., New York, N. Y.
Hamilton, W. C., & Sons, Inc., Miquon, Pa.
Hammermill Paper Co., Erie, Pa.
Hollingsworth & Whitney Co., 140 Federal St., Boston, Mass.
Howard Paper Co., Urbana, Ohio
International Paper Co., 220 E. 42nd St., New York, N. Y.
Maxwell Paper Co., Franklin, O.
Neenah Paper Co., Neenah, Wis.
Northwest Paper Co., The, Cloquet, Minn.
Rhinelander Paper Co., Rhinelander, Wis.
Riegel Paper Co., 342 Madison Ave., New York, N. Y.
Sorg Paper Co., The, Middletown, O.
Strathmore Paper Co., W. Springfield, Mass.
Warren, S. D., Co., 89 Broad St., Boston, Mass.
Watervliet Paper Co., Watervliet, Mich.
West Virginia Pulp & Paper Co., 230 Park Ave., New York, N. Y.
Whiting, Geo. A., Paper Co., Menasha, Wis.

PAPER CONDITIONING EQUIPMENT

Advance Mfg. Co., Inc., Louisville, Ky.
Southworth Machine Co., 30 Warren Ave., Portland, Maine.
Strachan & Henshaw Co., Ltd., 7th at Grange St., Phila., Pa.

PAPER CUTTING MACHINES

Seybold Division, Harris-Seybold-Potter Co., Dayton, O.

PAPER DISTRIBUTORS

Bulkley-Dunton & Co., 295 Madison Ave., New York, N. Y.
Forest Paper Co., Inc., 334 Hudson St., New York, N. Y.
Lathrop Paper Co., 155 Perry St., New York, N. Y.
Linde, J. E., Paper Co., 111 Eighth Ave., New York, N. Y.
Marquardt & Co., Inc., 153 Spring St., New York, N. Y.
Millar, Geo. W., & Co., Inc., 284-290 Lafayette St., New York, N. Y.
Miller & Wright Paper Co., 200 Varick St., New York, N. Y.
Royal Paper Corp., 11th Ave. & 25th St., New York, N. Y.

PARAFORMALDEHYDE—U. S. P.

Hunt, Philip A., Co., 253 Russell St., Brooklyn, N. Y.—2432 Lakeside Ave., Cleveland, O.—1076 W. Division St., Chicago, Ill.—111 Binney St., Cambridge, Mass.
Mallinkrockdt Chemical Works, 3600 N. Second St., St. Louis, Mo., and 72-74 Gold St., New York, N. Y.

PHOTO COMPOSING MACHINES

Lanston Monotype Machine Co., 24th at Locust, Phila., Pa.
Rutherford Machinery Co., Div. General Printing Ink Corp., 100 Sixth Ave., New York, N. Y.
Strachan & Henshaw Co., Ltd., 7th at Grange St., Phila., Pa.

PHOTO LETTERING MACHINES

Rutherford Machinery Co., Div. General Printing Ink Corp., 100 Sixth Ave., New York, N. Y.
Wesel Mfg. Co., 468 Fourth Ave., New York, N. Y. and Scranton, Pa.

PLATE COATING EQUIPMENT

Lanston Monotype Machine Co., 24th at Locust, Phila., Pa.
Rutherford Machinery Co., Div. General Printing Ink Corp., 100 Sixth Ave., New York, N. Y.
Wesel Mfg. Co., 468 Fourth Ave., New York, N. Y. and Scranton, Pa.
Zarkin Machine Co., 335 E. 27th St., New York, N. Y.

PLATE GRAINING MACHINES

Robertson, R. R., 400 W. Madison St., Chicago, Ill.
Wesel Mfg. Co., 468 Fourth Ave., New York, N. Y. and Scranton, Pa.
Zarkin Machine Co., Inc., 335 E. 27th St., New York, N. Y.

PLATE GRAINING MATERIALS

American Graded Sand Co., 2516 Greenview Ave., Chicago, Ill.
Carborundum Co., Niagara Falls, N.Y.
International Printing Ink Corp., The, 636 11th Ave., New York, N.Y.
Minneapolis Mining & Mfg. Co., St. Paul, Minn.

New England Quartz Co. of New York, 450 Seventh Ave., New York, N. Y.
Seibold, J. H. & G. B., Inc., 47 Watts St., New York, N. Y.
Senefelder Company, Inc., The, 32-34 Greene St., New York, N. Y.
Zarkin Machine Co., Inc., 335 E. 27th St., New York, N. Y.

PLATE MAKING EQUIPMENT

California Ink Co., Inc., The, 545 Sansome St., San Francisco, Calif.
Lanston Monotype Machine Co., 24th at Locust St., Phila., Pa.
Miles Machinery Co., 18 E. 16th St., New York, N. Y.
Rutherford Machinery Co., Div. General Printing Ink Corp., 100 Sixth Ave., New York, N. Y.
Strachan & Henshaw Co., Ltd., 7th at Grange St., Phila., Pa.
Wesel Mfg. Co., 468 Fourth Ave., New York, N. Y. and Scranton, Pa.

PLATE MAKING SERVICE

Chicago Litho Plate Graining Co., 214 N. Clinton St., Chicago, Ill.
Columbia Offset & Reproduction Corp., 2 Duane St., New York, N. Y.
Graphic Arts Corp., 1104 Jackson Ave., Toledo, O.
Knop & Brauer, 1726 N. First St., Milwaukee, Wis.
Lithoplate Co., 101 E. Clybourn St., Milwaukee, Wis.
Offset Engravers Associates, Inc., 42 E. 20th St., New York, N. Y.
Offset Printing Plate Co. of New York, Inc., 100 Bleecker St., New York, N. Y.
Printers' Offset Plate Co., 103 Lafayette St., New York, N. Y.
Progressive Fine Arts Co., 1027 N. Seventh St., Milwaukee, Wis.
Rightmire-Berg Co., 717 S. Wells St., Chicago, Ill.
Swart-Reichel, Inc., 461 Eighth Ave., New York, N. Y.
Stevenson Photo Color Separation Co., 222 W. Fourth St., Cincinnati, O.

PLATES—Aluminum, Zinc

Aluminum Co. of America, Gulf Bldg., Pittsburgh, Pa.
American Zinc Products Co., Greencastle, Ind.
Edes Mfg. Co., The, Plymouth, Mass.
Illinois Zinc Co., 332 S. Michigan Ave., Chicago, Ill.
International Printing Ink Corp., The, 636 11th Ave., New York, N. Y.
Lithographic Plate Graining Co. of America, Inc., 41 Box St., Brooklyn, N. Y.
Matthiessen & Hegeler Zinc Co., LaSalle, Ill.
National Litho Plate Co., The, 35 Meadow St., Brooklyn, N. Y.
Photo-Litho Plate Graining Co., Inc., 1207 S. Highland St., Baltimore, Md.
Reliable Lithographic Plate Co., Inc., 17 Vanderwater St., New York, N. Y.
Senefelder Company, Inc., The, 32-34 Greene St., New York, N. Y.

PLATES—Dry

Eastman Kodak Co., Rochester, N. Y.
Gevaert Co. of America, Inc., The, 423 W. 55th St., New York, N. Y.
Hammer Dry Plate & Film Co., Ohio Ave. & Miami St., St. Louis, Mo.
Norman-Willets Co., 318 W. Washington St., Chicago, Ill.

PLATES—Zinc, Copper and Alloy (for Engravers)

Rolled Plate Metal Co., 210 Van Brunt St., Brooklyn, N. Y.

PRESSES—New

Harris-Seybold-Potter Co., 4510 E. 71st St., Cleveland, O.
Hoe, R., & Co., Inc., 910 E. 138th St. at East River, New York, N. Y.
Miehle Printing Press & Mfg. Co., 14th St. and S. Damen Ave., Chicago, Ill.
New Era Mfg. Co., 145 Nassau St., New York, N. Y. and Paterson, N. J.
Rutherford Machinery Co., Div. General Printing Ink Corp., 100 Sixth Ave., New York, N. Y.
Wagner, Charles, Litho Machinery Co., Div. of National-Standard Co., 51 Park Ave., Hoboken, N. J.
Webendorfer-Wills Co., Inc., Mount Vernon, N. Y.
Willard Press Mfg. Co., 28 W. 23rd St., New York, N. Y.

PRESSES—Rebuilt Litho

Miles Machinery Co., 18 E. 16th St., New York, N. Y.
Zarkin Machine Co., Inc., 335 E. 27th St., New York, N. Y.

PROOF AND TEST PRESSES

Lanston Monotype Machine Co., 24th at Locust, Phila., Pa.
New Era Mfg. Co., 145 Nassau St., New York, N. Y. and Paterson, N. J.
Rutherford Machinery Co., Div. General Printing Ink Corp., 100 Sixth Ave., New York, N. Y.
Strachan & Henshaw Co., Ltd., 7th at Grange St., Phila., Pa.
Wagner, Charles, Litho Machinery Co., Div. of National-Standard Co., 51 Park Ave., Hoboken, N. J.

PUMPS—Vacuum and Air

Leiman Bros., 23 Walker St., New York, N. Y., and 110 Christie St., Newark, N. J.

QUARTZ GRAINING SAND

International Printing Ink Corp., The, 636 11th Ave., New York, N. Y.
New England Quartz Co. of New York, 450 Seventh Ave., New York, N. Y.
Senefelder Company, Inc., The, 32-34 Greene St., New York, N. Y.

REBUILT EQUIPMENT

Miles Machinery Co., 18 E. 16th St., New York, N. Y.
Zarkin Machine Co., Inc., 335 E. 27th St., New York, N. Y.

ROLLERS

Bingham Bros. Co., Inc., 406 Pearl St., New York, N. Y.
Bingham's, Sam'l, Son Mfg. Co., Chicago, Ill.
Dayco Division, Dayton Rubber Mfg. Co., Dayton, O.
Godfrey Roller Company, 211 N. Camac St., Phila., Pa.
Ideal Roller & Mfg. Co., Inc., 2512 W. 24th St., Chicago, Ill., and 21-24 Thirty-ninth Ave., Long Island City, N. Y.
Rapid Roller Co., Federal at 26th, Chicago, Ill.
Roberts & Porter, Inc., 100 Lafayette St., New York, N. Y., and 402 S. Market St., Chicago, Ill.
Siebold, J. H. & G. B., Inc., 47 Watts St., New York, N. Y.
Vulcan Proofing Co., 58th St. & First Ave., Brooklyn, N. Y.

SCREENS—Halftone

Miles Machinery Co., 18 E. 16th St., New York, N. Y.
Ostrander-Seymour Co., The, 1870 S. 54th Ave., Cicero Sta., Chicago, Ill.
Pitman, Harold M., Co., 150 Bay St., Jersey City, N. J., and 51st Ave. and 33rd St., Chicago, Ill.
Repro-Art Machinery Co., Wayne Ave. & Berkeley St., Phila., Pa.
Sullebarger, E. T., Co., 116 John St., New York, N. Y., and 538 S. Clark St., Chicago, Ill.

SHADING MACHINES AND MEDIUMS

Ben Day, Inc., 118 E. 28th St., New York, N. Y.
Craftint Mfg. Co., 210 St. Clair Ave., Cleveland, O.

SILVER BATHS

Douthitt Corp., The, 650 W. Baltimore Ave., Detroit, Mich.

SODIUM SULPHITE ANHYDROUS PHOTO

Hunt, Philip A., Company, 253 Russell St., Brooklyn, N. Y.—2432 Lakeside Ave., Cleveland, O.—1076 W. Division St., Chicago, Ill.—111 Binney St., Cambridge, Mass.
Mallinkrockdt Chemical Works, 3600 N. Second St., St. Louis, Mo., and 72-74 Gold St., New York, N. Y.
Norman-Willets Co., 318 W. Washington St., Chicago, Ill.

SPRAY GUNS

American Type Founders Sales Corp., 200 Elmora Ave., Elizabeth, N. J.
DeVilbiss Co., The, Toledo, O.
Paasche Airbrush Co., 1909 Diversey Parkway, Chicago, Ill.
Sprayomatic Products Co., 1120 Harrison St., Cincinnati, O.

STARTERS AND CONTROLLERS FOR ELECTRIC MOTORS

Monitor Controller Co., Inc., 51 S. Gay St., Baltimore, Md.

STRIPPING TABLE

Miles Machinery Co., 18 E. 16th St., New York, N. Y.
Wesel Mfg. Co., 468 Fourth Ave., New York, N. Y. and Scranton, Pa.
Zarkin Machine Co., Inc., 335 E. 27th St., New York, N. Y.

SULPHUR

International Printing Ink Corp., The, 636 11th Ave., New York, N. Y.
Mallinkrockdt Chemical Works, 3600 N. Second St., St. Louis, Mo., and 72-74 Gold St., New York, N. Y.
Pitman, Harold M., Co., 150 Bay St., Jersey City, N. J., and 51st Ave. and 33rd St., Chicago, Ill.
Sinclair & Carroll Co., Inc., 591 11th Ave., New York, N. Y.

TAX CONSULTANTS

Kromberg, J., & Associates, C.P.A.'s, 461 Eighth Ave., New York, N. Y.
Levess, Herbert H., C. P. A., 360 W. 23rd St., New York, N. Y.
Reinish, Samuel S., C. P. A., 2 Lafayette St., New York, N. Y.

TIME CLOCKS—Recorders and Stamps

International Time Recording Division of International Business Machines Corporation, 590 Madison Ave., New York, N. Y.

TRADE LITHOGRAPHERS

Hinson & McAuliffe Corp., 203 E. 12th St., New York, N. Y.

TRANSFER PAPER

International Printing Ink Corp., The, 636 11th Ave., New York, N. Y.
McKinley Litho Supply Co., 1600 John St., Cincinnati, O.
Senefelder Company, Inc., The, 32-34 Greene St., New York, N. Y.
Siebold, J. H. & G. B., Inc., 47 Watts St., New York, N. Y.
Sinclair & Valentine Co., 11 St. Clair Pl., New York, N. Y.

TRANSFER PROOFS—TYPE IMPRESSIONS

New York Type Transfer Service, 237 Lafayette St., New York, N. Y.

TUSCHE

International Printing Ink Corp., The, 636 11th Ave., New York, N. Y.
Korn, Wm., Inc., 270 West St., New York, N. Y.
Senefelder Company, Inc., The, 32-34 Greene St., New York, N. Y.

TYPEWRITER COMPOSITION

Gallant Service, Inc., 81 W. Van Buren St., Chicago, Ill.
Kopy Komposers, Bourse Building, Phila., Pa.

TYPEWRITER RIBBONS
Carbon Paper or Fabric

Remington-Rand, Buffalo, N. Y.

TYPEWRITERS

International Electric Writing Machines Division of International Business Machines Corporation, 590 Madison Ave., New York, N. Y.
Remington-Rand, Inc., Buffalo, N. Y.
Royal Typewriter Co., Two Park Ave., New York, N. Y.
Smith, L. C., & Corona Typewriter, Inc., Syracuse, N. Y.
Underwood Elliott Fisher Co., One Park Ave., New York, N. Y.

VACUUM AND PRINTING FRAMES

Douthitt Corp., The, 650 W. Baltimore Ave., Detroit, Mich.
Lanston Monotype Machine Co., 24th at Locust, Phila., Pa.
Miles Machinery Co., 18 E. 16th St., New York, N. Y.
Ostrander-Seymour Co., The, 1870 S. 54th Ave., Cicero Sta., Chicago, Ill.
Robertson, R. R., 400 W. Madison St., Chicago, Ill.
Rutherford Machinery Co., Div. General Printing Ink Corp., 100 Sixth Ave., New York, N. Y.
Sullebarger, E. T., Co., 116 John St., New York, N. Y., and 538 S. Clark St., Chicago, Ill.
Sweigard-Ideal Co., 6122 N. 21st St., Phila., Pa.
Wesel Mfg. Co., 468 Fourth Ave., New York, N. Y. and Scranton, Pa.
Zarkin Machine Co., 335 E. 27th St., New York, N. Y.

VARNISH

Ault & Wiborg Corp., 75 Varick St., New York, N. Y.
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Abstracts of important current articles, patents, and books, compiled by the Research Department of the Lithographic Technical Foundation, Inc. These abstracts represent statements made by the authors of articles abstracted, and do not express the opinions of the abstracters or of the Research Department. Mimeographed lists have been prepared of (1) Periodicals Abstracted by the Department of Lithographic Research, and (2) Books of Interest to Lithographers. Either list may be obtained for six cents, or both for ten cents (in stamps). Address the Department of Lithographic Research, University of Cincinnati, Cincinnati, Ohio.

Photography and Color Correction

Photogravure Positives. G. L. Wakefield. *Process Engravers' Monthly*, 44, No. 526, Oct. 1937, pp. 351–2. To insure satisfactory etching conditions and good tone renderings, the end densities of a monochrome positive should be 1.7 for deepest shadow and 0.5 for highlights. To insure accurate measurements, a comparator or density meter is necessary. Slow plates or films of the "ordinary" type, with a good scale of gradation and ample latitude are best for normal requirements. Technique of contact printing and enlargement are described.

Fixed-Stop Negative Making. F. H. Smith. *Process Engravers' Monthly*, 44, No. 527, Nov. 1937, pp. 365–6, 370. The fixed-stop method of negative making is described, explaining the conditions governing the relation of stop aperture and camera extension to screen aperture and screen distance.

Half-Line Work. F. H. Smith. *Process Engravers' Monthly*, 44, No. 528, Dec. 1937, pp. 405–6. A method is given for calculating screen distances to be used with slit-stops in making single-line screens.

Color Copy by Methods Other than Kodachrome or Screened Transparencies. S. H. Horgan. *Photo-Engravers' Bulletin*, 27, No. 5, Dec. 1937, pp. 13–5. Some methods are described for supplying photographic copy in colors on mounted board for reproduction by the photo-engraver. These methods include the Carbro process, the Eastman Wash-off Relief process, the Bourges process, and the Jos-Pe and Pinatype imbibition processes.

"Pattern" in Four-Color Half-Tone. Anonymous. *Paper and Print*, 10, No. 39, Autumn 1937, pp. 208, 210, 212. The cause and method of avoiding "pattern" in four-color half-tone work is discussed. When the black, red, and blue printings are so placed as to be separated by 30° from each other, pattern will be minimized.

The Odd Ratio Half-Tone Screen. R. Grinell. *Photo-Engravers' Bulletin*, 27, No. 4, Nov. 1937, pp. 17–9. Screens differing from the 1 : 1 usually employed are described, and their advantages are enumerated. By use of screen ratios 1½ : 1, 2 : 1, and 3 : 1, calculations are simplified and dots are obtained which possess less fringe and greater opacity. As no single screen ratio is best for all rulings, a table of suggested ratios for various rulings is given, although no definite statement can yet be made as to absolute limits.

Sharp Focus by Eliminating Parallax. F. E. Burman. *Process Engravers' Monthly*, 44, No. 526, Oct. 1937, p. 333. For reproduction of fine pen drawings or copper plate work, it is necessary to use particularly sharp focus, and to remember that some lenses vary in focus at different apertures. Two simple methods of eliminating parallax for obtaining sharp focus are described.

Color Photography and Offset Printing. *Deutscher Drucker*, 43: 359–62, June 1937. An historical introduction mentions the origin of color photography and the development of screen-plate processes and one-shot cameras. Orthodox methods of reproduction by the offset process are listed. The lithographer still prefers more than four printing colors, in spite of theory. (*Monthly Abstract Bulletin of Eastman Kodak Company*, 23, p. 531 (1937).)

Planographic Printing Surfaces and Plate Preparation

The Albumen Bichromate Process of Making Press Plates. R. C. Hohenthaner. *Share Your Knowledge Review*, 19, No. 1, Nov. 1937, pp. 9–17. The making of albumen press plates is described in considerable detail. Formulas and directions are given for making all solutions required and discussions of exposure timing and of light sources available are included.

Recommendations and Formulae for Albumen Plate Making. (Hammer Dry Plate & Film Co.) *Photo-Lithographer*, 5, No. 12, Dec. 1937, pp. 33, 35, 37, 65. Formulae and directions are given for making albumen photo-litho plates.

Plate Oxidation Subject Rouses Considerable Discussion. J. M. Williams. *Lithographers' Journal*, 22, No. 7, Oct. 1937, pp. 301, 315. The mechanism of oxidation of zinc and aluminum plates is discussed, with reference to F. J. Tritton's article "A Study of the Theory of Lithographic Printing" published in the Journal of the Society of Chemical Industry (Transactions and Communications), Sept 2, 1932, and Sept. 9, 1932, pp. 300–316 T.

Graining Litho Plates. E. Hansen. *Lithographers' Journal*, 22, No. 9, Dec. 1937, pp. 387, 408; 22, No. 10, Jan. 1938, pp. 431–2. The factors limiting the depth of the ideal grain are outlined, and the difficulties involved in classifying grain sizes are cited. The pretreatment of the plate, the graining operation itself, and the choice of marbles, abrasive, and plate metal are discussed.

The Practical Lithographer. "Practical Lithographer." *British and Colonial Printer and Stationer*, 121, No. 476, Dec. 2, 1937, pp. 546, 548. The usual causes of plates thickening up include faults in etching of either photo or transfer plates, excess pressure, or use of unsuitable paper which makes the plate surface greedy for ink, or ink having a tendency to pile up on plate or blanket. The identification of such conditions and their correction is discussed.

Equipment and Materials

New Developments in Chemicals for the Photo-Lithographic Process. W. H. Wood. *Photo-Lithographer*, 5, No. 12, Dec. 1937, pp. 15, 63. The Harris-Seybold-Potter Company research laboratory has for two of its aims the development and standardization of new processes and chemicals for offset lithography and the improvement of older processes, methods, and chemicals. A synthetic colloid substitute for the albumen plate coating has been developed, together with various other preparations.

Water Feed for a Rotary Offset and Lithographic Presses. J. G. Goedike. *U. S. Patent* No. 2,106, 732 (Feb. 1, 1938). In a printing press, the combination of a water feed and a distributing system including dual ink covered rollers, means for maintaining said rollers covered with ink and means for feeding water to said rollers and collecting any excess of water therefrom, said last mentioned means comprising a dual trough structure, a source of water supply in one of the troughs of said dual structure and means for drawing any excess of water from said rollers into the other trough of said structure.

Method and Apparatus for Measuring Properties of Inks and the Like. R. F. Reed. *U. S. Patent* No. 2,101,322 (Dec. 7, 1937). In a device of the class described, a base and a pair of standards mounted thereon, a roller rotating substantially frictionlessly within said standards, means for controlling the temperature of said roller, a cradle mounted to rotate substantially frictionlessly about the axis of said first roller, said cradle comprising, a second roller normally in resting tangential contact with said first roller, cradle side members carrying said second roller, counterweights carried by the side members of said cradle, means for axially moving said second roller, means for disrupting the contact of the rollers, and a graduated beam and adjustable weight adapted to accurately dynamically balance the cradle.

Paper and Ink

Recent Developments in Printing Inks. H. A. Idle. *Journal Oil & Color Chemists' Association*, Oct. 1937. *American Ink Maker*, 15, No. 12, Dec. 1937, pp. 19–21, 31, 33. The characteristics required in inks for letterpress, gravure, and litho respectively are discussed. The problems of maintaining uniformity in color, drying power, wettability, consistency, flow, tack, and resistance to various substances including overprint varnishes, and resistance to heat and light are considered.

Some Comments on Quick Drying Inks. J. D. Cohen. *Paint, Varnish, Lacquer, Enamel, and Color Manufacture*, Nov. 1937. *American Ink Maker*, 15, No. 12, Dec. 1937, pp. 25, 27. Inks made with the newer quick-drying varnishes usually must contain different proportions of pigment and varnish than inks containing straight polymerized oil varnishes, and may differ in color effect and thixotropic properties. Quick-setting yellow, red, and blue inks are now well known in connection with three- and four-color work. Other colors are being studied.

Litho Offset Press Blankets and Inks. R. C. Hohenthaner. *Share Your Knowledge Review*, 18, No. 12, Dec. 1937, pp. 27–8. The importance of the rubber litho blanket, and the choice and care of such blankets are discussed. The use of an ink of good quality is recommended on grounds of improved quality of result and economy in ink usage.

General

Photo-Offset and What it Means to the Ink Maker. H. L. Dennis. *American Ink Maker*, 15, No. 12, Dec. 1937, pp. 16–8, 37. A summary of the photo-offset process is given, devoting particular attention to the rôle of ink in the process, the choice of inks for best results, and precautions to be observed in the manufacture and use of ink.

Details of Offset Imposition. H. H. Gugler. *Inland Printer*, 100, No. 3, Dec. 1937, pp. 25–30. Planograph work usually confines itself to re-photographing existing type and half-tones, to form work where ruling can be drawn by hand with a pen, and to printed material in which the text is reproduced from typewritten copy. No corrective hand work is done, and speed and low cost are the objectives. The making of layouts is discussed and the use of the vacuum frame to produce copy of good quality is discussed in considerable detail. A number of illustrations are included.

Static Elimination. J. Simons. *Printing Equipment Engineer*, 55, No. 2, Nov. 1937, pp. 149–51. Several types of static eliminators, each suited to a particular use, are described and illustrated by diagrams.

Miscellaneous

Testing Raw Materials and Products. A. Salmony. *Paper and Print*, 10, No. 39, Autumn 1937, pp. 248–50, 252, 254. Microscopic methods of examining papers, boards, inks, and glues for faults in material and workmanship are described. These include the use of the microscope, camera-microscope, and various special adaptations of the microscope. A number of photo-micrographs accompany the article.

Printing Surfaces. A. Schlesinger. *British Patent* No. 470,402 (Feb. 12, 1936). An intaglio plate or cylinder comprises an upper layer or layers of one or more materials which can be etched and of a thickness equal to the maximum depth to which it is desired to etch, and an under layer of a material not attacked by the etching agent, a half-tone screen being used to provide variations in tone

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values. The upper layer may consist of a metal such as copper or chromium, or other suitable material such as celluloid, and the under layer may consist of a flexible material such as celluloid or cardboard, so that the plates may be applied to a cylinder. The upper layer may be electrolytically deposited, an intermediate layer, e.g. of nickel, being first applied to facilitate the deposition of the upper layer. In one method of preparation, a base of steel is provided with an electrodeposit of copper of a depth equal to the desired depth of etching and the design is prepared on the copper, by coating it with bichromated glue or gelatin and exposing under a half-tone screen positive. After development the copper is etched with ferric chloride until the steel undersurface appears.

Benzol (Benzene) Poisoning. (U. S. Dept. of Labor.) *American Photo-Engraver*, 29, No. 12, Dec. 1937, pp. 1028–9. The industries involving risk of benzene (benzol) poisoning are listed, and symptons of poisoning, treatments, and methods of prevention are discussed.

Printing Member and Method of Producing Same. W. E. Griswold. *U. S. Patent* No. 2,107,294 (Feb. 8, 1938). A method of making a photogravure printing plate from a metal, having a surface layer of a first metal, which consists in applying a resist to the outer surface of said surface layer and in accordance with the shape of the walls of cells which are to be etched in said surface layer, then etching the exposed portion of said surface layer so as to form etched cells therein having laterally continuous walls made of said first metal, then filling the etched cells with a second metal while preventing any deposit of the second metal on the outer surfaces of said lateral cell walls, then removing the resist, then applying a print resist to said outer surface, and then etching only the second metal in accordance with the varying tone of said print resist.

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QUESTION AND ANSWER

Printing Solids on Multilith and Time for Drying

QUESTION

I wonder if you have established a set-up on a definite size of solids on a 206C Multilith which will handle satisfactorily, and what your experience has been with various grades of paper and card stock that you have printed satisfactorily on the Multilith. In other words, do you believe that a very definite solid, say 4 x 5 inches, can be covered satisfactorily on the 206C Multilith. Also, would you recommend the use of paper such as Warren's offset enamel on the Multilith and high finish Index Bristol stock? If these can be run satisfactorily on this stock, what would you say is a reasonable length of time for the ink to dry thoroughly without any danger of offsetting or smudging?

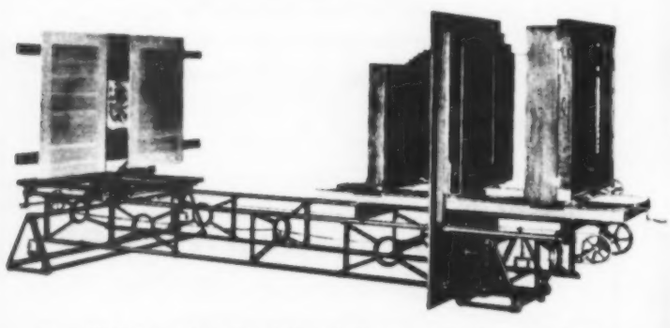
ANSWER

We will definitely say that solids 4 x 5" can be satisfactorily covered on the Model 206C Multilith.

The best way to cover the range of paper stocks which can be satisfactorily handled on the Multilith is to recommend any stock that can be satisfactorily handled on other offset machines.

Regarding the reasonable length of time for the ink to dry thoroughly without danger of offsetting or smudging, there is no definite time which can be set for this type of drying for the simple reason that in Multilith, or any other form of printing, humidity has a great deal to do with the drying of ink. In other words, an ink that is run at a temperature of 70° with normal humidity would easily dry overnight, and we always recommend overnight drying. As you know, an abnormal humidity of, let's say, 18 to 20 or less would permit the ink to dry much more quickly, and above 60 cause it to dry much slower.

The quality of paper also has a great deal to do with the time of drying. Hard-surfaced, non-absorbent paper takes much longer to dry than absorbent paper such as offset stock. As a general rule, overnight or twelve-hour drying is sufficient.



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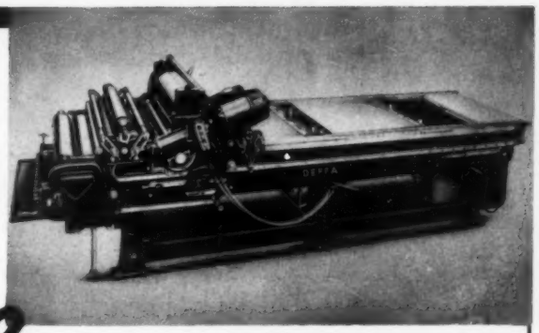

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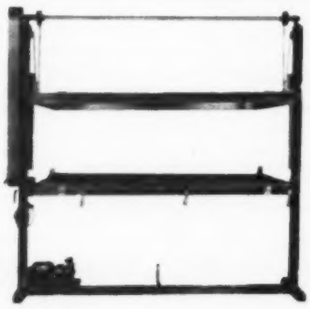

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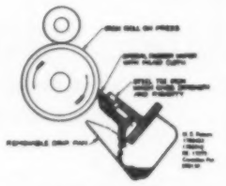

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Going lithograph plant with Harris Offset Press Equipment for sale in Philadelphia. Reasonable terms to responsible party. Box M-12.

EQUIPMENT AND SUPPLIES

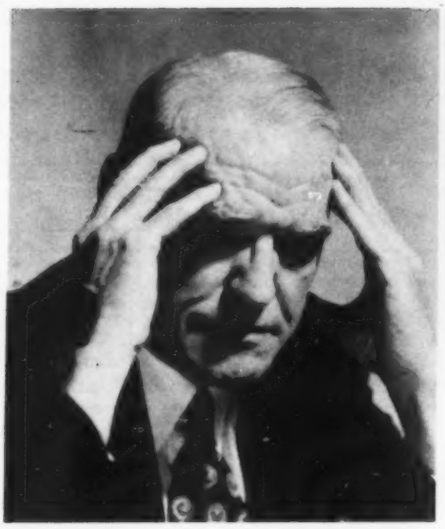
ACID RESISTING SINK LINING — "Rubberline" stops leaks. Has been on the market more than 14 years. Resists all acids and alkalies. Will adhere to any clean surface, wood, metal, enamel, etc. Send for free sample and circular describing this compound. Retinning Mfg. Co., 3021 Greenview Ave., Chicago, Ill.

Milwaukee Bronzers
for all presses. Also some rebuilt units. Write
C. B. Henschel Mfg. Co., Milwaukee, Wisc.

SMITH'S
"SMOOTHOL" Ink Wax

Lithographic and Offset **INK WAX REDUCER**
SAVES FROM 10 to 25% ON YOUR INK BILLS!
Overcomes all difficulties. The only reducer of ink consistency with so many claims for recognition that does everything its name implies.
Manufactured by
FRANCIS X. SMITH COMPANY
952 EAST 93rd ST. BROOKLYN, N. Y.

"Do Nots" IN GETTING A JOB



No matter what degree of prosperity is now being enjoyed by the photo-lithographic industry, or what higher degrees of activity—therefore increased opportunities for capable men—there may be in the future, there will always be a large number of men in the industry not only unemployed but, more significantly, unemployable, *at least until they take a critical, completely objective look at themselves to find and correct the reasons for their turn-downs.*

Any photo-lithographer who has found getting a desirable job unusually difficult might get valuable help from the following suggestions. By giving careful heed to them he is likely to learn that his unemployment difficulties originate not in deficiencies in training and abilities but in the non-observance of fundamentals of personal approach and presentation of himself to the prospective employer.

DO not start your letter with the statement that you read the advertisement and that it interests you. You merely waste words. The employer knows you read the advertisement and that it interests you. Otherwise you would not have replied.

Do not burden your letter with such statements as: "I realize that a large number of applicants will doubtless be received and that it will require a great deal of your time to read them all, and it will probably be very difficult to decide," etc.

Do not make any statement like the following: "There is scarcely anything in the nature of bookkeeping or accounting problems of today of which I am not a master."

Do not use "longhand" if you can avoid it or unless it is specified in the advertisement.

Do not send a letter done in careless handwriting. Typewriting is inexpensive.

Do not use social note paper.

Do not write on both sides of the sheet.

Do not write with a lead pencil.

Do not forget, if you are a poor speller, that it is easy to check yourself by reference to a dictionary. A misspelled work in a letter of application sticks out like a sore thumb.

Do not be general in outlining your experience record. Give the names of the companies and the length of service with them and tell what you are able to do.

Do not fail to comply with every individual item of the advertisement. Strict compliance with the details suggests the observant.

Do not rely on general statements. Employers like to draw their own conclusions from definite, concrete facts.

Do not volunteer any statement to the effect that you are not interested in the salary if the prospects are bright. Executives are not looking for "something for nothing" offers.

Do not put the salary question on the basis of what you must have, but rather in the form of what you can make yourself worth.

Do not make inquiries that will indicate more interest in personal advantage than in serving your prospective employer.

Do not make flippant, bombastic, or studiedly clever remarks.

Do not be egotistical. There's a difference between egotism and confidence.

Do not try to describe your general personal characteristics, enthusiasm, loyalty, appearance, etc. These are qualities for which no one will take your own word.

Do not talk about your family.

Do not specify details of your personal habits, such as smoking, chewing, and drinking. The average employer has at least one of these habits. Take no chances of stepping on his toes.

Do not fail to state your age—unless your withholding it fulfills some definite purpose.

Do not fail to give references.

Do not enclose original letters of recommendation or other papers of value to blind addresses. Send copies.

"Do Nots" for the Interview

Do not walk into a private office with your hat on.

Do not walk into an office with a cigar, cigarette or pipe in your mouth or hand.

Do not lay a limp hand in your prospective employer's hand—grip his hand firmly.

Do not fall back into a chair as though you were going to sleep in it. Sit upright. When you stand, stand up.

Do not put your hat on the executive's desk.

Do not try to force intimacy with the executive.

Do not try to hand him a cigar.

Do not try to do all the talking—be a responsive listener.

Do not bring up purely personal matters.

Do not be egotistical—speak with confidence of your work.

Do not "knock" your present or past employer. Speak well of them.

Do not try to give the impression that you are a martyr in your present position.

Do not let the interview grow stale. When you feel that you have gone as far as you can toward closing the deal, get out.

GRAINING SERVICE
Zinc, Aluminum, Glass, etc.

PLATE MAKING EQUIPMENT
Vacuum Frames, Whirlers, Contact Printers, Arc Lights, Accurate Cross Rule Form and Negative Ruler, Makeup and Layout Tables . . . and other products.

MADDOX
Lithoplate Graining Corp.
503 S. Jefferson St., Chicago

SR INC

COLOR SEPARATIONS • BLACK AND WHITE • • COLOR CORRECTED NEGATIVES READY FOR THE PHOTO-COMPOSING MACHINE • POSITIVES • PROVING • • PRESS PLATES: ALBUMEN DEEP ETCH • • •

We GUARANTEE *the same confidence and integrity that would be found in your own plant.*

WE OPERATE NO PRESSES NOR ARE WE AFFILIATED WITH ANY LITHOGRAPHIC HOUSE . . . .

SWART-REICHEL, INC.
Producers of Photo-Lith Work to the Trade
461 EIGHTH AVENUE • NEW YORK
Telephone BRyant 9-1906-7

Dealer Opportunity

Manufacturers desire outlets for their proven Litho products:

FOUNTAIN ETCH
DEVELOPING INK
PLATE ETCH

Products available bulk or packaged. Available for reputable dealers only. State your present line and references.

Box M 27, c/o The Photo-Lithographer

SULLEBARGER

For

CAMERAS — VACUUM FRAMES
SCREENS — WHIRLERS
LENSES — CARBONS
ARC LAMPS — OKAY OPAQUE
OKAY DEVELOPING INK

E. T. SULLEBARGER CO.
116 JOHN STREET, NEW YORK, N. Y.
538 SOUTH CLARK ST., CHICAGO, ILL.

GELB
Standard Lamps
meet every requirement of the photo-lithographer.

Gelb "Spectro" Lamps Light the World

You can lighten your light problems with Gelb Lamps They are manufactured according to one high and exacting standard of mechanical precision, making the various parts of any lamp interchangeable with the parts of other Gelb lamps.

There is a Gelb Lamp to meet every need. You can choose from a varied range of models and sizes.

Write for new catalog outlining the *"7 Points of Superiority"* of Gelb lamps.

GELB LAMP MFG. CO.
250 West 54th Street, New York City

W. P. Millé
55 RAMSEY AVENUE, YONKERS, N.Y.
DESIGNING
PEN DRAWING
ENGRAVING
RETOUCHING
NEGATIVES
TINTS AND BORDERS FOR COUPONS, CHECKS, CERTIFICATES.

SET YOUR OWN TYPE
with FOTOTYPE Cardboard Letters. Save composition costs on paste-ups. Self-aligning . . . Easy to use. Write for folder. FOTOTYPE, 631 W. Washington, Chicago.

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Fourth Production Yearbook is Published

The Fourth Production Yearbook, published in February by The Colton Press, Inc., New York, is a worthy successor to the Production Yearbooks of the last three years.

Heavy with a wealth of factual material covering practically all phases of graphic arts and advertising production work, and with many inserts, some in full color, the Fourth Yearbook is in itself a testimonial to efficient production. It costs $5.00.

The Yearbook sections cover not only art and photography, bookmaking and binding, engraving, electrotyping, ink, paper, printing processes, and typography, but they contain such up-to-the-minute subjects as color in newspapers and broadcast advertising and television.

Future of Webb Offset Press

(*Continued from page 48*)

offset press that has a special web feed control so that different lengths of forms can be printed and different lengths of feeds cut off to suit the length of form placed on the plate.

6. Why is it, with the advantages stated, that more web offset presses are not in general use?

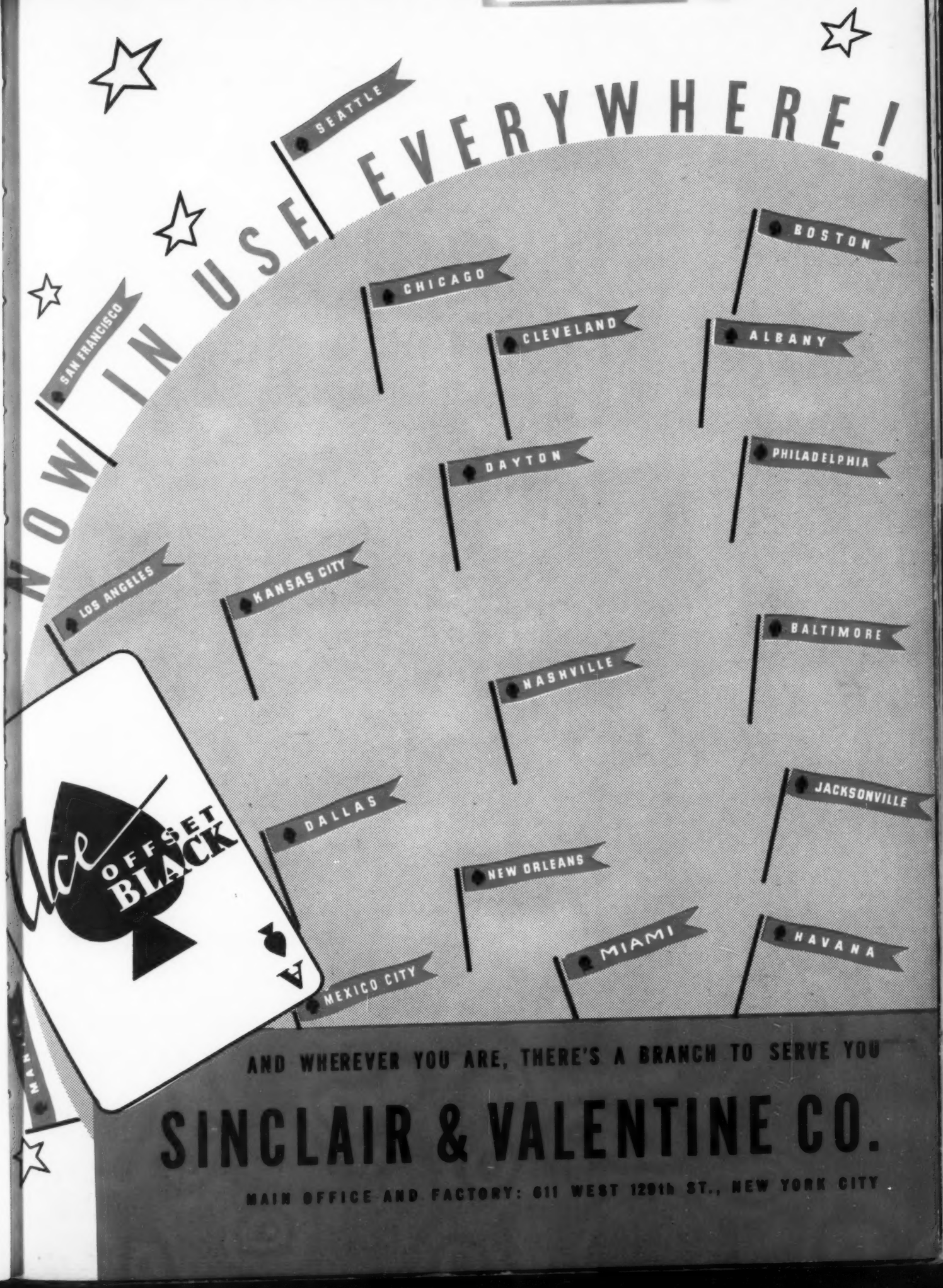
Ans: To obtain all the economy possible with a web press, the press should have sufficient units to completely finish the job in the passage of the paper through same. Such a press naturally is a great investment for the printer, and it is much greater an investment than a single color sheet fed press. With a single color sheet fed press the printer can produce any job from one color to any number of colors, according to the number of times he passes the sheets through his press.

Within approximately the last ten years multi-color sheet fed presses have come into use, developed to eliminate the feeding of sheets through the press several times. It is only within the last few years that web offset presses have been developed by the press manufacturers, and as stated at the end of my address, when the printers become more familiar with the various economies that can be obtained by completely finishing a job with a web press, such as printing any number of colors on both sides and performing other operations before the web is delivered into sheets, rewound into rolls or folded, then web offset press will come into more general use.

7. At 10,000 sheets or more per hour, will these presses register to a hair-line as is required on multi-color work?

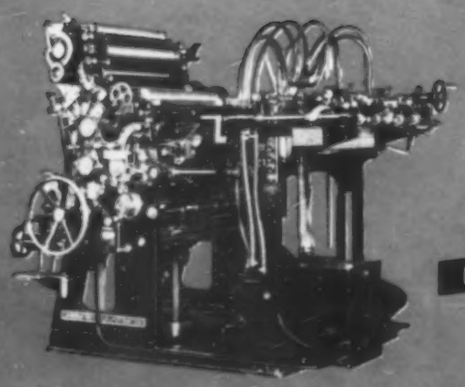
Ans: It is my opinion that a web offset press will produce as close register for multi-color printing and do it more consistently than on sheet fed presses, even at the high speed. This is mainly due to the fact that a web of paper traveling through the press is under more perfect control than is possible for sheet fed presses where the sheet is only held at the front edge of the sheet.

VOLUME TIGHTLY BOUND

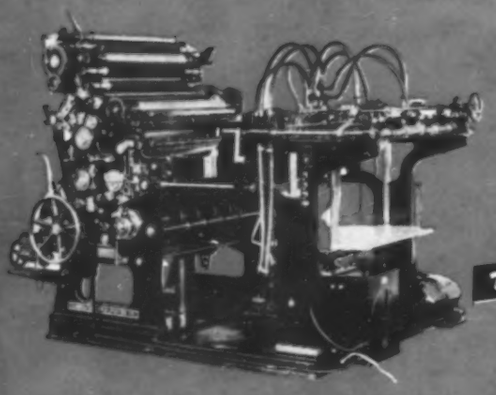


Three Single Color Commercial Offset Presses

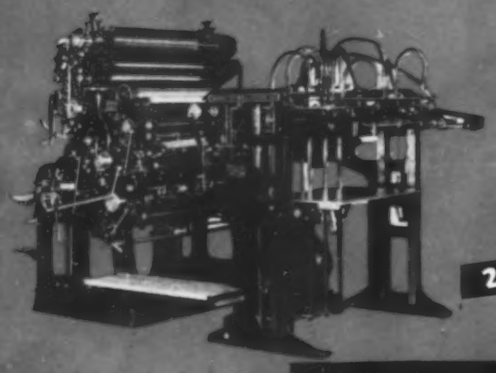
DEVELOPED ESPECIALLY FOR THE LONG AND SHORT RUN



LSB
17" X 22"



LSN
21" X 28"



EL
22" X 34"

Designed for Creative Sales Effort

• Standard equipment throughout the photo-lithographic industry, the Harris commercial group of single color offset presses are designed to balance shop production and to turn out maximum volume of quality work at the end of the day's run.

These three small single color presses 17" x 22", 21" x 28" and 22" x 34" embody in their engineering and designing proven Harris principles for economy of operation and volume production. Their installation brings the press room up-to-date and enables it to meet the demands of today's broad and rapidly expanding market for photo-lithographic work.

HARRIS • SEYBOLD • POTTER COMPANY

General Offices: 4510 East 71st Street, Cleveland, Ohio • *Harris Sales Offices:* New York, 330 West 42nd Street • Chicago, 343 South Dearborn Street • Dayton, 813 Washington Street • San Francisco, 420 Market Street • *Factories:* Cleveland • Dayton.

HARRIS OFFSET PRESSES